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No. 38 for the year 1958



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* Reprints are available of these articles

Council's Report for 1958

AT the end of our Centenary Year we looked back to a period of hard work and not a little success. The Centenary meeting at Church House, Westminster on March 11, which was attended by distinguished guests and the press, opened the celebrations.

Mr. Messervy-Whiting undertook the arduous task of planning our Centenary Exhibition and from the day on which he showed us a scale model of the first site, he worked for more than a year with tireless energy, assisted by some of our members, until the mounting was finished at Stoke Newington and we could feel truly satisfied with the result.

Professor Munro Fox performed the opening ceremony at Stoke Newington public library where we were entertained by the Mayor who formally welcomed the Society. We are most grateful for the kindness and hospitality shown us by the Chief Librarian and his staff.

We were honoured by the presence of Lord Hurcomb at the Royal Exchange where he declared the exhibition open. Recordings of the opening ceremony and of interviews with members were broadcast by the B.B.C. in "Town and Country" from 6.35 p.m. to 7 p.m. Many well-known naturalists were present and a representative gathering of pressmen.

Mr. Byerley was responsible for the mounting at the Royal Exchange and he tackled the difficult task of expanding the original plans to cover nearly three times as much floor space. We are deeply indebted to him and his helpers for producing a result which did the Society credit and was admired by all who saw it. In spite of all his hard work he found time to make a permanent record in colour of the opening ceremonies and the screens. In addition his friend Mr. Fenwick, although not a member, brought his tape recorder. They compiled a programme between them which we showed you on March 23 of the highlights of our exhibition.

At Wandsworth in a more informal setting Eric Simms was kind enough to declare the exhibition open and to praise the work of the Society in preparing it. Mr. Vernon was responsible for the planning here and mounted the panels in a completely new way.

It is not possible to thank personally all who helped with the preparation of the panels, but with so large a membership it should not have been necessary for the same small group to have to undertake the work of mounting and packing at all three sites.

We appreciate the kindness of Professor Munro Fox, our Honorary President, who was present at all the Centenary Year functions.

Much of the publicity was due to a committee set up under the chairmanship of Mr. Cramp. Among the results of its efforts the devotion of the October "Nature Notebook" programme by the B.B.C. to the Society was perhaps the most important. Mr. E. M. Nicholson contributed an article to the November issue of *Discovery* and many other natural history journals and newspapers also carried articles.

At the end of the year the membership was 1,693, a net gain of 140 from October, 1957. Of these 1,230 were full members, 117 family members, 152 junior members, 129 country members, 24 life members and 12 honorary members. Twenty-nine colleges, libraries and other societies are also affiliated.

The small sale of cards for Christmas 1957 was a great disappointment. This was partly due to the delay in publishing the *London Bird Report* which made it impossible to circularize members.

The Treasurer's report was indeed very serious as he announced a deficit of over £140. This showed how necessary was the resolution to increase the subscription which was adopted by a meeting in July.

The President's fund brought in nearly £180—and the exhibition cost more than £200 before it was finished. Many members have joined as a direct result of the exhibition but it is not yet possible to tell if they will fully recompense for those who have resigned. The increased sales of Christmas cards and publications for which we must thank the many who have given their time to staffing the exhibitions would help to pay the balance over the President's fund which must be found.

The Society gratefully acknowledges the receipt through the Royal Society of a Parliamentary grant-in-aid of £50 towards the cost of the 1957 *London Naturalist*.

The size and complexity of the Society's activities have led Council to look into the organization and to adopt the recommendation of a committee set up under the chairmanship of Mr. Cramp. An Administration and Finance Committee, meeting monthly under a chairman appointed by Council will be responsible for the day-to-day running of the Society, leaving matters of major policy to Council which in future will meet only four times a year. This will result in the office of President becoming more an honour and less a crippling sentence of hard labour.

The Council for Nature was founded in 1958 under the chairmanship of Lord Hurcomb. The Society became one of the founder members with our President Mr. C. P. Castell on the Committee for Services to Members.

The General Secretary wishes to thank all who have so kindly helped her during the eventful and harrassing year, but the list would be too long to be given in detail.

It is with deep regret that we record the death of Mr. W. C. Cocksedge, a Vice-President of the Society. An obituary notice appears elsewhere in this journal.

We also record with regret the deaths of the following members: A. J. Beamish, Miss H. Eckenstein, Miss M. Fry, Dr. E. M. Hall, Miss M. Harper, D. W. Small, Dr. M. Smith and H. Stanners.

The Climate and Vegetation of the London Area in Prehistoric Times

By C. P. CASTELL

(Presidential Address, December, 1957)

ONE of the earliest observations on the prehistoric plants of London was made nearly 300 years ago. In Pepys' Diary, under the date September 22, 1665, appears the following entry: "At Blackwall. Here it is observable what Johnson tells us, that, in digging the late dock, they did, 12 feet under ground, find perfect trees overcovered with earth. Nut-trees, with the branches and the very nuts upon them; some of whose nuts he showed us. Their shells black with age; and their kernel, upon opening, decayed, but their shell perfectly hard as ever. And a yew-tree, upon which the very ivy was taken up whole about it, which, upon cutting with an adze, we found it to be rather harder than the living tree usually is. The arms, they say, were taken up first whole, about the body, which is very strange." This must be the first published record of the existence of *Corylus avellana*, *Taxus baccata* and *Hedera helix* in the Post-Glacial deposits of the Thames Estuary and as we shall see later, there is nothing absurd in Pepys' record of a yew-tree from the Thames marshes.

The term "Prehistoric" is used by the writer to cover the period of time between the first known appearance of man in this country and his first written historical records, i.e. some half a million years back to early Palaeolithic times during the Ice Age. "Prehistoric Times" are thus the equivalent of the geologists' Quaternary Era, the last and most insignificant in length of time of all the geological eras. Out of the 600,000 years of the Quaternary, the Pleistocene Period or the various stages of the Ice Age occupied about 590,000, leaving only 10,000 years or so for the Holocene, or Post-Glacial Period. Our present flora and fauna developed in this last and very short space of geological time.

The chief evidence of former ice-sheets or glacial conditions in the London Area lies in the Boulder Clay, which is widespread over Essex, the southern boundary running from Colchester, through Brentwood, Hornchurch, Epping, Finchley and Hendon to Wembley. It covers more than 3,000 square miles of Eastern England, in the form of a fan radiating from the Fens and represents the morainic material of a vast ice sheet. It is mostly a tough bluish-grey clay with flint boulders, lumps of hard chalk and Jurassic rocks and fossils as well as blocks of igneous rocks from Scandinavia; many of the rocks show characteristic glacial striae. Our London Boulder Clay is the Great Chalky Boulder Clay formed mainly during the Maximum or Antepenultimate Glaciation, some 450,000 years ago. In the area occupied by this ice-sheet, all life must have been exterminated north of the Thames. The Thames itself was pushed south, from its pre-Glacial course through the Vale of St. Albans, by the vast floods of water and masses of gravel pouring south as glacier streams (Charlesworth, 1957; Zeuner, 1945).

Melting icebergs near our south-west coasts are indicated by the many erratic boulders dredged from the sea. At a little earlier stage, before the ice reached as far south as England, the shelly banks of the Crag deposits on the East Anglian coast suggest very strong and persistent east winds. The Scandinavian erratics in the boulder clay of London indicate that the

THE QUATERNARY ERA IN LONDON
HOLOCENE OR POST-GLACIAL
(after Godwin)

<i>Years ago</i>	<i>Pollen Zone & Vegetation</i>		<i>Culture</i>	<i>Climatic Period</i>	
2,000	VIII	Alder-oak-elm-birch (beech)	Iron Age	Sub- Atlantic	POST- GLACIAL
4,500	VIIb	Alder-mixed-oak- Forest	Bronze Age Neolithic	Sub- Boreal	
7,000	VIIa			Atlantic	
8,000	VI	Pine-hazel	Meso- lithic	Boreal	
9,000	V	Pine		Pre- Boreal	
10,000	IV	Birch-pine			
11,000	III	Park Tundra (Birch copses)	Upper Palaeo- lithic	Upper Dryas	LATE- GLACIAL
12,000	II	Birch Woods		Alleröd	
14,000	I	Park Tundra (local birch)		Lower Dryas	
20,000 +		Arctic Plant Bed	(Pleistocene)		FULL- GLACIAL

PLEISTOCENE
(Mainly after Zeuner, 1945 and 1958)

<i>Years ago</i>		
10,000– 120,000	LAST GLACIAL (Würm Glaciation)	Lower Flood Plain Terrace, including Lea Valley Arctic Bed.
150,000– 200,000	LAST INTERGLACIAL	Upper Flood Plain Terrace, Admiralty, Trafalgar Square, Taplow Terrace, Crayford.
200,000– 250,000	PENULTIMATE GLACIATION (Riss Glaciation)	Main Coombe Rock
250,000– 450,000	GREAT OR PENULTIMATE INTERGLACIAL	Boyn Hill Terrace, Clacton, Grays, Swanscombe.
450,000– 500,000	MAXIMUM OR ANTE- PENULTIMATE GLACIATION (Mindel Glaciation)	Black Park Terrace, Great Chalky Boulder Clay.

North Sea was then covered by an ice-sheet moving from the Scandinavian Highlands. Southern England was a bare windswept tundra, snow-covered for a great part of the year. England was united to the continent, the English Channel being merely a wide gulf from the Atlantic.

The surface layers of the North Atlantic must have been much colder and unable to warm up the polar air from the west and north-west. Snow showers would therefore have prevailed through the greater part of the year, even at sea level, producing conditions comparable with those of South Georgia to-day. Polar air would meet the milder humid Atlantic air, producing deep depressions, with almost incessant stormy damp winds and very heavy precipitation, mostly of rain in the south-west, but snow further east. In southern England, snowstorms would be less intense and, in spring and early summer, the weather would be drier and perhaps sunny at times. The Downs appear to have been free from extensive ice-sheets but the ground must have been deeply frozen and, in the shady hollows facing north-east, persistent snowdrifts may have remained throughout most years, possibly sculpturing the present coombs (Manley, 1952).

Some idea of the intensity of the cold during the Last Glaciation, which did not extend further south than the Midlands, is afforded by a remarkable underground pinnacle of chalk discovered in borings in a valley near Newbury, Berkshire, and described by Professor Hawkins in 1953. This pinnacle was 175 ft. across and at least 150 ft. above the level of the surrounding underground chalk, having penetrated the Reading Beds and part of the London Clay to within 50 ft. of ground level. Between the top of the pinnacle and ground level was a funnel-shaped channel leading down into the pinnacle and filled with layers of peat and gravel of Late-Glacial age. Lines of faults in the Reading Beds and London Clay meet at the pinnacle, which consists of a chalk paste containing angular pieces of chalk. Professor Hawkins considers that the ground must have been frozen some 200 ft. below the present floor of the valley, producing the paste-like condition of the chalk. On thawing, the weight of the overlying beds of the plateau, a hundred feet above, forced the chalk through this weak spot, like tooth paste out of a tube, to reach the surface. A swallow hole was subsequently formed, followed by the deposition of peat, which could be dated from an analysis of its pollen content. Professor Hawkins reminds us that the rocks in Yukon to-day are full of ice at depths of more than 400 ft. (Hawkins, 1953).

Continental workers consider that, in the last glaciation, a January isotherm of about 5°F. passed through the London Area, and even in the southern part of the Bay of Biscay the January temperature reached only 28°F. In July the London isotherm rose to 45°, while S.W. France enjoyed the relative warmth of 54°F. The ground, however, was permanently frozen as far south as the centre of France. (Charlesworth, 1957).

A glance at the geological map will show that much of the London Clay, on both sides of the Thames and up the Lea Valley, is covered by flat stretches of gravels, sands and loams. These occur at definite levels, roughly 150, 100, 50 and 25 ft. above the present bed of the Thames. They are known as terraces and mark stages in the history of the Thames and of the Lea, the older the deposit the higher its level. They are, in places, highly fossiliferous and a study of the plant remains over many years has thrown much light on the history of London's plant life.

The oldest terrace in our area, at a level of 150 ft. above the present Thames, is the **BLACK PARK TERRACE**, of which the gravels of Richmond Park and Wimbledon Common form a part. These were laid down by a torrential Thames swollen with melt waters from the Great Chalky Boulder Clay Ice Sheet and contain no contemporary fossils; we therefore know nothing about the plant or animal life of London at this period of maximum glaciation, about 450,000 years ago. The next two terraces are the older Boyn Hill at 100 ft, deposited during the succeeding Great Interglacial, which lasted about 200,000 years, and the younger Taplow at 50 ft. mostly formed in the Last Interglacial (Wooldridge, 1938; Wooldridge and Linton, 1955, 133).

Deposits of **BOYN HILL** age occur north of the Thames at Hillingdon, Islington, the W. side of the Lea Valley, both sides of the Roding Valley and south of the Thames at Wandsworth, Clapham and Tooting Commons, Croydon, Dartford Heath and Swanscombe. Although the Boyn Hill deposits are rich in animal remains, conditions do not appear to be often suitable for the preservation of plants.

One of the earliest sites to be investigated was a gravel pit in Shacklewell Lane, W. Hackney, where Prestwich in 1855 reported finding branches and trunks of trees all lying prostrate in a bed of sandy clay in the gravel at a depth of about 10 ft. Some of the trunks were three to four feet long and six to twelve inches in diameter. There were also numerous small branches and leaves but no trace of roots *in situ*. It was a shallow water deposit and Prestwich suggested that the trees had been blown down by strong winds. Professor Quekett examined the woods and recognized oak, elm, alder and hazel (Prestwich, 1855).

With the recording of plants from the famous Palaeolithic site at Stoke Newington by Worthington G. Smith in 1894 we enter a period of Quaternary botany dominated by the work of Clement Reid. Both were amateurs; Smith a skilful botanical artist and eminent amateur mycologist, became a leading amateur archaeologist, while Reid, a field geologist on the staff of the Geological Survey, made a special study of Quaternary plant remains, especially fruits and seeds, his life-long hobby. All the fossil evidence known at the time was gathered together by Reid in his rather slim book "The Origin of the British Flora," published in 1899. It remained the standard work until the publication in 1956 of Dr. Godwin's monumental "History of the British Flora."

From Stoke Newington, Reid recorded the trees*—*Alnus glutinosa*, *Betula*, *Pinus*, *Taxus* and *Ulmus* as well as *Clematis vitalba*, *Corylus*, impressions of grasses, rushes and sedges and the ferns *Dryopteris filix-mas* and *Osmunda regalis* (Smith, 1894, 288).

From Grays, Essex, Reid records *Alnus glutinosa*, *Corylus avellana*, *Equisetum*, *Hedera helix*, *Populus canescens* (?), *Potamogeton*, *Quercus petraea*, *Ranunculus repens*, *Rosa*, *Rubus fruticosus*, *Salix*, and grass nodes. He points out that ivy is extremely sensitive to winter cold and the climate must, therefore, have been temperate, with a mild winter (Reid, 1897 a).

Swanscombe, so famous for its human remains and abundant mammalian fauna, unfortunately provides no direct evidence of the rich vegetation which must have existed to support the fauna.

To obtain a more adequate picture of the vegetation of the London area in Boyn Hill Terrace times it is necessary to follow the course of the

* A list of English names of flowering plants will be found on p. 16.

Thames Estuary of those times down to Clacton. Here 135 species of plants were recorded by Reid in 1923 as a result of intensive collecting by the late S. H. Warren, an eminent amateur London geologist and archaeologist. Most of the species are land plants and nearly all are living in this country to-day. Among the plants recorded are *Alnus glutinosa*, *Carex hirta*, *Clematis vitalba*, *Corylus avellana*, *Ilex aquifolium*, *Najas minor* (a Central European species to-day), *Picea abies*, *Potamogeton acutifolius*, *Quercus robur*, *Ranunculus bulbosus* and *Viola hirta*. There were only 50 marsh or water plants, about 35 species now characteristic of waste ground and ten lime-loving species. Most of the plants are those of dry soil and indicate a temperate climate with a warmer and drier summer than at present (Warren, 1923b; Reid and Chandler, 1923a).

Thirty years later, Pike and Godwin published the results of pollen analyses from an 18 ft. boring in these deposits at Clacton. In the lower part there was evidence of a Mixed Oak forest with Pine, Alder and Hazel, some Birch, Elm, Spruce and Ivy and traces of Fir (*Abies*). In the upper part, however, there was a strong development of Coniferous trees, especially *Abies*, which reached a value of 70 per cent in the uppermost part. This indicates a warm temperate forest followed by a period of declining warmth heralding probably the next glaciation (Pike and Godwin, 1953).

Another deposit of about the same age, at Dorchester, Oxfordshire, was investigated recently by Miss Duigan. The flora was mostly similar to that of the district at the present time, but it included a few species now restricted to Northern or Alpine regions, indicating a colder but by no means arctic climate. The flora included *Armeria maritima*, *Carex acuta*, *C. pendula*, *Cerastium arvense*, *Draba incana*, *Polygonum aviculare*, *Potamogeton densus*, *P. filiformis*, *Ranunculus hyperboreus* (circumpolar and now extinct in Britain), *R. lingua*, *R.?* *trichophyllus*, *Rumex* sp., *Scirpus lacustris*, *Thalictrum flavum*, and the grasses *Festuca* ?*ovina* and *F.?* *rubra*.

The deposit also yielded the following mosses: *Acrocladium cordifolium*, *A. stramineum*, *Bryum* sp., *Campylium* cf. *polygamum*, *Cratoneuron flicinum*, *Drepanocladus capillifolius* (abundant, a North American species, no longer British), *D. revolvens*, *D. sendteri*, *Mnium* cf. *rugicum*, *Philonotis calcarea* and *Pohlia* sp. With the exception of the one extinct species, they are widely distributed mosses to-day in neutral and mildly calcareous fen. The presence of the *Drepanocladus* suggests a rather cooler climate, but *Campylium* and *Philonotis calcarea* suggest that it was not truly arctic.

The flora indicates a cool climate and open vegetation such as one might expect at the opening or at the end of a full interglacial sequence (Duigan, 1955).

The TAPLOW TERRACE deposits, of Last Interglacial Age (150 to 250 thousand years ago), are practically continuous north of the Thames, occupying a larger area than the older Boyn Hill deposits. They extend through Slough, Hayes, Southall, Hounslow, Acton, Shepherds Bush, Hyde Park, Holborn, the City, Stepney, Clapton, Tottenham, Edmonton, Enfield, Wanstead Flats and Ilford. South of the river, they occur at Malden, Merton, Mitcham, Beddington and Crayford.

Hicks, in 1892, announced the discovery of Mammoth bones and many seeds at Endsleigh Street, near Euston. The seeds were named by Reid,

who in 1897 also listed plants from deposits at Hitchin, thought by him to be of the same age. The combined lists include aquatics such as *Hippuris vulgaris*, *Myriophyllum spicatum*, *Ceratophyllum demersum*, *Zannichellia palustris*, *Potamogeton crispus*, *P. obtusifolius*, *Ranunculus aquatilis*, *Najas marina*, *Scirpus lacustris* and *Chara* sp. Among the marsh plants were : *Montia fontana*, *Eupatorium cannabinum*, *Lycopus europaeus*, *Sparganium* sp., *Ranunculus sceleratus*, *R. repens*, *Menyanthes trifoliatus*, *Eleocharis palustris* and *Carex dioica*. Plants of drier habitats include *Stellaria media*, *Potentilla erecta*, *Polygonum aviculare*, *P. persicaria* and *Rumex obtusifolius*. At Hitchin there were also trees and shrubs such as Oak, Alder, Ash, Elder, Dogwood and Blackthorn. This is not a very different flora from what we might expect to-day in a marshy habitat.

It is most disappointing that the Crayford brickearths, so rich in animal remains, have failed to yield more than one plant record and that doubtful. Ridley, in 1885, identified wood associated with Palaeolithic flakes as *Castanea sativa* (Sweet Chestnut) but it might have been Oak (*Quercus petraea*). In any case, all the animal evidence from Crayford points to a climate warmer than to-day, with milder winters and a greater rainfall.

The lowest and youngest of our terrace deposits form the FLOOD-PLAIN TERRACE at about 25 ft. above the present Thames. In age, they range through the Last Interglacial, the Last Glacial and into the Post-Glacial. The deposits are widespread through Egham, Molesey, Teddington, Kew, Fulham, Battersea, Chelsea, Southwark, East Ham, Barking, and up the Lea through Hackney Wick, Edmonton and Ponders End to Nazeing.

At Twickenham, in 1892, a deep sewage culvert went through a lake deposit (possibly of a former Thames back-water), which was eroded and overlain by gravels containing Reindeer antlers. The lake deposit yielded remains of plants, all of which, including *Potamogeton alpinus*, are in our London Plant List. Reid was puzzled by the presence of Hemp Nettle (*Galeopsis tetrahit*), now a weed of cultivation, although there were no definite signs of cultivated plants or domestic animals. This was considered to be an interglacial deposit buried by glacial gravels (Leeson and Laffan, 1894). A similar state of affairs was discovered during the building of the Admiralty Offices in 1890, but here the presence of *Betula nana* seemed to indicate colder conditions. Three mosses were identified—*Leptodictyum riparium*, *Acrocladium stramineum* and *Drepanocladus fluitans*, all of which occur in Middlesex to-day (Abbott, 1892).

Although the records from the interglacial stages are not as full as one would like, it is clear that floras very much like the present, but more luxuriant, existed in the London Area nearly half a million years ago, during the Great Interglacial, to be replaced by coniferous woodland as cooler conditions foreshadowed the next glaciation. It would appear that similar conditions were repeated during the Last Interglacial.

We must now turn to the deposits of the Lea Valley, which have probably been more thoroughly investigated than any other local Quaternary deposits. Once again, our knowledge is due almost entirely to the careful observations and collecting of the late S. H. Warren over more than 40 years. A team of specialists has co-operated with him on the fauna and flora in producing a series of reports from 1912 to 1952 (Warren, 1912, 1916 and 1923a; Reid, C. 1916; Reid and Chandler, 1923b;

Reid, E. M., 1949; Godwin, 1949; Allison, Godwin and Warren, 1952; Godwin, 1953).

Within these Flood Plain Terrace deposits, beds of two ages have been recognized. The older beds occur at Edmonton, Ponders End and Broxbourne, dating from the Last Glaciation and termed the Ponders End Stage by Warren and the Full-Glacial by Godwin.

Conditions during the Last Glaciation in the London Area could not have been anything like as severe as in the Maximum Glaciation, as the ice-sheets did not approach within a hundred miles of London. Both the mollusca and the flora indicate tundra conditions in the Thames valley and a climate probably comparable with Lapland of to-day, with a July isotherm of 45° to 50°F. In the Lea Valley there was probably a diminution of the river through the freezing up of springs during the greater part of the year, the valley floor being occupied locally by marshes buried beneath snow during the winter months.

The flora, of about 150 species, includes the arctic Birch, *Betula nana*, and arctic Willows such as *Salix herbacea* and *S. lapponum*, as well as *Thalictrum alpinum*, *Potentilla nivea*, *P. nivalis*, *Sibbaldia procumbens*, *Armeria maritima*, *Oxyria digyna* and *Ranunculus hyperboreus*. These are all northern or highland plants and some no longer occur in Britain. About 50 species of mosses were recorded by Dixon and he considered the association an arctic one. Quite a considerable number of species (e.g. *Tortula norvegica*, *Timmia norvegica*, *Hypnum fastigiatum*, *Hygrohypnum molle*, *Scorpidium turgescens*) are arctic-alpine mosses, which are either entirely extinct in Britain at the present day or are confined to one or two summits of the higher Scottish mountains. Dixon had gathered the great majority of the species living in a limited area on Tornean Lapland (lat. 68°N.) at little above sea level. Some of the other species of flowering plants, although northern, are still to be found in the London Area, such as *Carex pulicaris*, *Eriophorum angustifolium*, *Menyanthes trifoliata*, *Potamogeton obtusifolius*, *P. praelongus*, *Potentilla palustris*, *Salix repens* and *Vicia sylvatica*. On the other hand, *Damasonium alisma*, an oceanic southern species, also occurs.

In Greenland to-day, non-arctic vegetation may be found flourishing under the warmer conditions near springs. There may, perhaps, have been a spring here, as a streamlet still rises just below the level of the Ponders End Site and has formed a distinct small valley; the site was probably a small swamp associated with a spring. Godwin (1956, 225) states that the identity of the *Damasonium* is unquestionable and the state of preservation rules out the possibility of derivation from some older bed, but its presence in an "Arctic bed" has always been a "severe embarrassment."

The Arctic Bed occurs in broken-up masses, occasionally 30 yards or more long and only a foot thick, in gravels showing evidence of severe frost disturbance. From their incoherent peaty nature, masses of this size could not have been transported any distance and they are certainly not lenticles in their place of original deposition. A suggested explanation has been that there was a slight amelioration of climate towards the end of the stage and, with an increase of seasonal thawing, the volume of the river was augmented, but it was burdened by partly frozen sludge which was greater than its transporting power. In this way the gravels of the Flood-Plain Terrace were laid down. At the same time, the river

tore up the peat deposits, which were still frozen and deposited them with gravel in the form of frozen rafts.

It is of interest to note that another arctic flora of some 90 species and of about the same age as the Ponders End deposits was described by Miss M. E. J. Chandler in 1921 from Barnwell in the Cam Valley. This is much nearer the ice sheet and we find that the arctic-alpine group of species forms 42 per cent of the whole compared with only 22 per cent in the Lea Valley. There also a greater number of non-indigenous plants at Barnwell.

Returning to Nazeing, we must now consider the younger Late-Glacial deposits of open-water muds, which rest upon these raft-bearing gravels. They pass conformably upwards into peats, the pollen of which has been analysed. The pollen zonation shows that the underlying mud layers must be either Late Glacial or early Post-Glacial. About 80 species were found in the mud and were mostly based on fruits, seeds and leaves.

If we consider the present British Flora from a geographical point of view and follow Matthews (1955) we find that 55 per cent belong to his European element, i.e. with a wide distribution in Europe. The remaining 45 per cent are divided by Matthews into 11 groups, and of these, four are not represented at all in the Nazeing Flora, where 77 per cent belong to the European element. These four are the Mediterranean, Oceanic Southern (or S.W. European), Continental Southern and Continental (i.e. Central European). The various Northern and Alpine elements are represented in roughly the same proportions. Godwin's comparisons are, of course, with the present flora of the British Isles as a whole (including Scotland); it would be instructive to compare the Nazeing flora with the combined floras of Middlesex, Hertfordshire and West Essex where the contrast would presumably be greater.

At Nazeing, during the Late-Glacial, forest trees are absent, except for the two Birches (*Betula pendula* and *B. pubescens*) and perhaps *Sorbus aucuparia*, but dwarf shrubs are represented in the Northern and Alpine elements by *Arctostaphylos uva-ursi*, *Betula nana*, *Empetrum nigrum*, *Potentilla fruticosa* and *Salix phylicifolia*. Other arctic-alpines include *Arenaria ciliata*, *Dryas octopetala* and *Thalictrum alpinum*. Two other main categories are marsh and aquatic plants, which form a large proportion as might be expected in a muddy deposit, and species now regarded as Ruderals or weeds.

Most of the land plants, i.e. 30-40 per cent of the total flora, are intolerant of woodland shade conditions or of competition of closed communities and thus accord with the absence of forest cover at this time. Under the prevailing climatic conditions, great spreads of fresh gravel, sand and silt were constantly available in this pre-forest stage for colonization by the so-called ruderals and weeds. These species have been assumed to be introduced with their crops by Neolithic or later people. However, these deposits establish the native status of many species such as *Galeopsis tetrahit* which puzzled Clement Reid by its appearance in the 'Interglacial' deposits at Twickenham. Other such species at Nazeing are *Chenopodium album*, *Linaria vulgaris*, *Polygonum aviculare*, *Potentilla anserina*, *Ranunculus acris*, *R. repens*, *Sonchus asper* and *Taraxacum officinale*. The pollen of *Polemonium coeruleum* was abundant, and as it has been found in a number of other prehistoric sites, it can hardly be regarded now as a garden escape in northern England. Some species, such as *Potentilla nivea* and *Ranunculus hyperboreus*, are now extinct in this country.

Seven mosses were identified from leaf shoots; four of them—*Camptothecium lutescens*, *Campylium stellatum*, *Calliergon giganteum* and *Drepanocladus aduncus*—are generally distributed in the British Isles and extend far north. *Cinclidium stygium* and *Meesia uliginosa* have a strongly northern distribution in Britain. *Drepanocladus capillifolius* has not yet been recorded living in Britain.

Conditions during the formation of the Nazeing Late Glacial Beds must, in the London Area, have had much in common with those during the Arctic Plant Bed (Full-Glacial). In this region, at least, it seems probable that, for a considerable period during the end of the last glaciation, there existed in South-East England a rather rich tundra flora, much of which persisted until the spread of deciduous woodland in Post-Glacial times. Doubtless, during the final part of the Late Glacial, conditions improved sufficiently to favour the rapid spread of some of the species but it must also have been the time of the introduction and expansion of many others. Later came the warm period in which deciduous forest cover and peat formation reduced to very small remnants the areas where such a flora might survive.

To appreciate the significance of Pepys' observations at Blackwall it is necessary to leave London for the North Sea.

When trawlers first visited the Dogger Bank, the surface was found to be strewn with large bones of land animals, many erratic blocks and loose masses of peat known to the fishermen as "Moorlog." All this caused much damage to their trawls and, unfortunately for geology, the material was just thrown overboard again in disgust, only a very few specimens being brought back to this country. It was not until 1909 that Clement Reid was able to examine material and to publish a list of plants from it (Whitehead and Goodchild, 1909; Reid, 1913; Whitehead, 1920). Except for the fact that *Betula pendula* was the only tree, the flora was very similar to that of our fens to-day. *Betula nana* occurred, but *Alnus* was absent, suggesting that conditions must have been very much colder. A few mosses were identified as *Drepanocladus revolvens* var. *intermedius* (fairly common), *Acrocladium giganteum*, *A. richardsoni* (a North American species) and *Sphagnum* sp. There were no edible fruits, no wind-borne Composites and no brackish-water plants. From this, it is a reasonable conclusion that the Dogger Bank was once the middle of a vast fen and the sea was some distance away. As parts of the peat surface are now 170 ft. below sea level, this is some measure of the rise in sea level as a result of the melting of the Pleistocene ice sheets. It also proves that the British Isles at that time were united to the rest of Europe across the North Sea and across the Channel. This rise of the sea level has submerged parts of the coast, including the Thames Estuary, which brings us back to Blackwall.

At the Albert Dock at Woolwich, the Tilbury Docks and at Crossness, tree and other plant remains have been found in Pre-Roman and apparently Neolithic deposits (Spurrell, 1889). The species are mostly what one would expect along a river, but not a tidal one. As well as at Blackwall, Yew was recorded at both Woolwich and Crossness, but it is intolerant of water and of saline conditions. It is evident that the river was not tidal at these localities and that the estuary and the sea were much farther to the east than now.

With the end of the Late-Glacial and the beginning of the Post-Glacial, we find that very little local information is available concerning vegetation

changes in the London Area, other than at Nazeing. Here, however, the evidence is based on pollen analysis and not on macroscopic remains, which can be determined with more certainty and have not travelled very far from their original habitat.

At Nazeing, during the Pre-Boreal, the first period after the Late-Glacial, the tundra with Dwarf Birch and Dwarf Willow, Godwin's "Park-Tundra," was invaded by Birch and a closed Birch woodland developed. The first part of the succeeding Boreal Period was characterized by Birch-Pine and Hazel, to be replaced as climatic conditions improved in the upper part of the Boreal by Mixed-Oak-Hazel wood with Dogwood. The final stage available at Nazeing was the development of an Alder-Mixed-Oak forest in the Atlantic period. Here our record ends in the Mesolithic Period, about 5,000 to 4,000 B.C.

It is evident that our knowledge of the history of the plants of the London Area is still very imperfect and there is great scope for the collecting and study of plants and animals from the extensive Quaternary deposits in our area. Work is going on, however, at several sites, one of which, at Trafalgar Square, has recently yielded plant remains among which Dr. Franks determined *Trapa natans*, the Water-Chestnut, hitherto known in this country only from the very much older Cromer Forest Bed of an early Interglacial. The deposits at Trafalgar Square are, like those of the Admiralty, Last Interglacial in age (Franks and others, 1958).

In this paper, I have endeavoured to compile and to summarize the published evidence for changes in our local vegetation over the last half a million years based on plant remains found within, or very near, the London Area. For its history after the Atlantic Period, one must assume that London fits into a scheme based mainly on evidence from East Anglia and a few coastal peat deposits elsewhere. Such a presumed history has been admirably summarized by Dr. Rose recently in the *London Naturalist* (Rose, 1957).

REFERENCES

- ABBOTT, W. J. L., 1892, The Section Exposed in the Foundations of the New Admiralty Offices. *Proc. Geol. Ass.*, 12, 346.
- ALLISON, J., GODWIN, H., and WARREN, S. H., 1952, Late-glacial deposits at Nazeing, the Lea Valley, North London. *Phil. Trans.*, B236, 169.
- CHANDLER, M. E. J., 1921, The Arctic Flora of the Cam Valley at Barnwell, Cambridge. *Quart. J. Geol. Soc.*, 77, 4.
- CHARLESWORTH, J. K., 1957, *The Quaternary Era, with Special Reference to its Glaciation*. London.
- DIXON, H. N., 1912, Report on the Mosses from the Arctic Bed. In Warren, S. H., 1912.
- DUIGAN, S. L., 1955, Plant Remains from the Gravels of the Summertown—Radley Terrace near Dorchester, Oxfordshire. *Quart. J. Geol. Soc.*, 111, 225.
- FRANKS, J. W., and others, 1958, Haunt of Elephant and Rhinoceros: The Trafalgar Square of 100,000 years ago—New Discoveries. *Ill. Lond. News*, 232, 1011.
- GODWIN, H., 1949, The spreading of the British Flora considered in relation to conditions of the Late-glacial period. *J. Ecol.*, 37, 140.
- , 1953, British Vegetation in the Full-glacial and Late-glacial periods. In Lousley, 1953.
- , 1956, *The History of the British Flora*. Cambridge.
- HAWKINS, H. E. L., 1953, A pinnacle of chalk penetrating the Eocene on the floor of a buried river-channel at Ashford Hill near Newbury, Berkshire. *Quart. J. Geol. Soc.*, 108, 233.
- HICKS, H., 1892, On the Discovery of Mammoth and other Remains in Endsleigh Street. *Quart. J. Geol. Soc.*, 48, 453.
- KENNARD, A. S., 1944, The Crayford Brickearths. *Proc. Geol. Ass.*, 55, 121.
- LEESON, J. R. and LAFFAN, G. B., 1894, On the Geology of the Pleistocene Deposits in the Valley of the Thames at Twickenham. *Quart. J. Geol. Soc.*, 50, 453.
- LOUSLEY, J. E., 1953, The Changing Flora of Britain. *Report 1952 Conference, Bot. Soc. Br. Isles*. Arbroath.
- MANLEY, G., 1952, *Climate and the British Scene*. London.
- MATTHEWS, J. R., 1955, *Origin and Distribution of the British Flora*. London.
- PIKE, K., and GODWIN, H., 1953, The Interglacial at Clacton-on-Sea, Essex. *Quart. J. Geol. Soc.*, 108, 261.
- PRESTWICH, J., 1855, On a Fossiliferous Deposit in the Gravel at West Hackney. *Quart. J. Geol. Soc.*, 11, 107.

- REID, C., 1897a, Pleistocene Plants from Casewick, Shacklewell and Grays. *Quart. J. Geol. Soc.*, 53, 463.
 ———, 1897b, The Palaeolithic Deposits at Hitchin and their Relation to the Glacial Epoch. *Proc. Roy. Soc.*, 61, 40.
 ———, 1899, *The Origin of the British Flora*. London.
 ———, 1913, *Submerged Forests*. Cambridge.
 ———, 1916, The Plants of the Late-Glacial Deposits of the Lea Valley. *Quart. J. Geol. Soc.*, 71, 155.
 REID, E. M., 1949, The Late-glacial flora of the Lea Valley. *New Phytol.*, 48, 245.
 ———, and CHANDLER, M. E. J., 1923a, The Fossil Flora of Clacton-on-Sea. *Quart. J. Geol. Soc.*, 79, 619.
 ———, 1923b, The Barrowell Green (Lea Valley) arctic flora. *Quart. J. Geol. Soc.*, 79, 604.
 RIDLEY, H. N., 1885, *Castanea sativa* Mill. as a native of Britain. *Journ. Bot.*, 23, 253.
 ROSE, F., 1957, Vegetation History and Environmental Factors in the London Area. *L.N.*, 36, 29.
 SMITH, W. G., 1894, *Man, the Primaevial Savage; his Haunts and Relics from the Hill-tops of Bedfordshire to Blackwall*. London.
 SPURRELL, F. C. J., 1889, On the Estuary of the Thames and its Alluvium. *Proc. Geol. Ass.*, 11, 210.
 WARREN, S. H., 1912, On a Late Glacial Stage in the Valley of the River Lea, subsequent to the Epoch of River-Drift Man. *Quart. J. Geol. Soc.*, 68, 213.
 ———, 1916, Further Observations on the Late-glacial stage of the Lea Valley. *Quart. J. Geol. Soc.*, 71, 164.
 ———, 1923a, The Late-glacial Stage of the Lea Valley (Third Report). *Quart. J. Geol. Soc.*, 79, 603.
 ———, 1923b, The *Elephas antiquus* bed at Clacton-on-Sea and its flora and fauna. *Quart. J. Geol. Soc.*, 79, 606.
 WHITEHEAD, H., 1920, More about "Moorlog," a Peaty Deposit from the Dogger Bank in the North Sea. *Essex Nat.*, 19, 242.
 ———, and GOODCHILD, H. H., 1909, Some Notes on "Moorlog," a peaty deposit from the Dogger Bank in the North Sea. *Essex Nat.*, 16, 51.
 WOOLDRIDGE, S. W., 1938, The Glaciation of the London Basin and evolution of the Lower Thames drainage system. *Quart. J. Geol. Soc.*, 94, 627.
 ———, and LINTON, D. L., 1955, *Structure, Surface and Drainage in South-East England*. London.
 ZEUNER, F. E., 1945, *The Pleistocene Period; its Climate, Chronology and Faunal Successions*. Ray Society, London.
 ———, 1958, *Dating the Past. An Introduction to Geochronology*. 4th Ed. London.

LIST OF ENGLISH NAMES OF PLANTS REFERRED TO IN THE TEXT

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| <i>Alnus glutinosa</i> —Alder | <i>Polemonium coeruleum</i> —Jacob's Ladder |
| <i>Arctostaphylos uva-ursi</i> —Bearberry | <i>Polygonum aviculare</i> —Knot weed |
| <i>Arenaria ciliata</i> —Fringed Sandwort | <i>P. persicaria</i> —Common Persicaria |
| <i>Armeria maritima</i> —Thrift | <i>Populus canescens</i> —Grey Poplar |
| <i>Betula nana</i> —Dwarf Birch | <i>Potamogeton</i> —Pond Weed. |
| <i>B. pendula</i> —Silver Birch | <i>Potentilla anserina</i> —Silverweed |
| <i>B. pubescens</i> —Downy Birch | <i>P. erecta</i> —Tormentil |
| <i>Carex</i> spp.—Sedge | <i>P. fruticosa</i> —Shrubby Cinquefoil |
| <i>Cerastium arvense</i> —Field Mouseear Chick-weed | <i>P. palustris</i> —Marsh Cinquefoil |
| <i>Chenopodium album</i> —Fat Hen | <i>Quercus petraea</i> —Durmast Oak |
| <i>Clematis vitalba</i> —Traveller's Joy | <i>Q. robur</i> —Common Oak |
| <i>Corylus avellana</i> —Hazel | <i>Ranunculus acris</i> —Meadow Buttercup |
| <i>Damasonium alisma</i> —Star Fruit | <i>R. aquatilis</i> —Water crowfoot |
| <i>Draba incana</i> —Twisted Whitlow-grass | <i>R. bulbosus</i> —Bulbous Buttercup |
| <i>Dryas octopetala</i> —Mountain Avens | <i>R. lingua</i> —Greater Spearwort |
| <i>Dryopteris filix-mas</i> —Male Fern | <i>R. repens</i> —Creeping Buttercup |
| <i>Eleocharis palustris</i> —Marsh Clubrush | <i>R. sceleratus</i> —Celery Leaved Crowfoot |
| <i>Empetrum nigrum</i> —Crowberry | <i>R. trichophyllus</i> —Fennel-leaved Water Crowfoot |
| <i>Equisetum</i> —Horsetail | <i>Rubus fruticosus</i> —Bramble |
| <i>Eriophorum angustifolium</i> —Common Cotton grass | <i>Salix herbacea</i> —Least Willow |
| <i>Eupatorium cannabinum</i> —Hemp Agrimony | <i>S. lapponum</i> —Downy Willow |
| <i>Festuca ovina</i> —Sheep's Fescue | <i>Salix phylicifolia</i> —Tea-leaved Willow |
| <i>F. rubra</i> —Red Fescue | <i>S. repens</i> —Creeping Willow |
| <i>Hedera helix</i> —Ivy | <i>Scirpus lacustris</i> —Bullrush |
| <i>Hippuris vulgaris</i> —Marestail | <i>Rumex obtusifolius</i> —Broad-leaved Dock |
| <i>Ilex aquifolium</i> —Holly | <i>Sonchus asper</i> —Rough Sow Thistle |
| <i>Linaria vulgaris</i> —Yellow Toadflax | <i>Sorbus aucuparia</i> —Mountain Ash |
| <i>Lycopus europaeus</i> —Gipsywort | <i>Sparganium</i> —Bur-reed |
| <i>Menyanthes trifoliata</i> —Bog Bean | <i>Stellaria media</i> —Chickweed |
| <i>Montia fontana</i> —Blinks | <i>Taraxacum officinale</i> —Dandelion |
| <i>Myriophyllum spicatum</i> —Water Milfoil | <i>Taxus baccata</i> —Yew |
| <i>Osmunda regalis</i> —Royal Fern | <i>Thalictrum alpinum</i> —Alpine Meadow-rue |
| <i>Oxyria digyna</i> —Mountain Sorrel | <i>T. flavum</i> —Yellow Meadow-rue |
| <i>Picea abies</i> —Spruce | <i>Ulmus</i> —Elm |
| <i>Pinus</i> —Pine | <i>Vicia sylvatica</i> —Wood Vetch |
| | <i>Viola hirta</i> —Hairy Violet |
| | <i>Zannichellia palustris</i> —Horned Pondweed |

Botanical Records for 1958

Compiled by J. EDWARD LOUSLEY

EXPERIENCE during 1958 seems to suggest that however unfavourable the effect of the weather may be on plants, it makes surprisingly little difference to the success of the botanists who record them. For the third successive year the weather in the London Area was exceedingly unfavourable and throughout the summer generally cold and wet conditions prevailed.

After a cold March, and snow in early April, spring flowers were late and it was not until mid-May that signs of a very backward season became less apparent. There was a welcome fairly warm spell from mid-June until about July 12, and then low temperatures, rain and overcast skies prevailed for the rest of the season. By August, ponds were overfull, much ground was waterlogged, and botanical work severely handicapped. The only compensation was that we had no frost until November 1, and desultory flowering of lush plants continued until late in the autumn.

It is a great tribute to the enthusiasm of London botanists that the volume of records contributed was as great as ever, and the quality even higher than last year. A change in the proportions of the records contributed for the various vice-counties which commenced in 1957 was even more marked. This year those from Surrey considerably exceeded those from all the other vice-counties put together, and while the major contribution was from R. C. Wingfield, it is clear that the activities of the Surrey Flora Committee have stimulated greater interest. Similarly the work of Dr. J. G. Dony in preparation for a new Flora of Hertfordshire has encouraged more attention to be given to this county which we have long tended to neglect. It is significant that the whole of the London Area with the exception of the very small piece in Buckinghamshire is now covered by work in preparation for new county floras. From this the Society's botanical records are benefiting but it is becoming increasingly difficult to confine our work to the parts of the counties within our Area.

Records of exceptional interest sent in this year include new stations for Kentish milkwort, *Polygala austriaca*, and frog orchid, *Coeloglossum viride*, from Dr. F. Rose; two very rare hawkbits, *Crepis setosa* and *C. nicaeensis*, found respectively by an L.N.H.S. party and D. Murray; water avens, *Geum rivale*, from Mrs. E. A. Briggs and Mrs. C. E. Missen; suffocated clover, *Trifolium suffocatum*, from Surrey by R. C. Wingfield; and strapwort, *Corrigiola litoralis*, from Dr. J. G. Dony. Attention should also be drawn to the wool aliens found near Barking, and the investigation of sessile oakwood at Dulwich.

The nomenclature used in this report is based on the *List of British Vascular Plants* (1958) prepared by J. E. Dandy, and for species given in that list authors' names are omitted in order to save space. The numbers following place names are those of the 10-kilometre squares of the National Grid (for a full explanation see *L.N.*, 37, 182, 1958).

V.-c. 16, WEST KENT.

The discovery of Kentish milkwort, *Polygala austriaca*, on the chalk near Brasted (45) by Dr. F. Rose is an important additional station for this rare species. Our only previous records are from near Shoreham, and this new discovery encourages hope that the plant will be found again

in Surrey. In a wet ditch near Westerham (45), L. M. Glen found *Polygonum campanulatum* (comm. G. A. Matthews), while from Barnehurst Golf Course (57), Mrs. W. I. Brewer reports sawwort, *Serratula tinctoria*.

V.-c. 17, SURREY.

Crepis setosa was found on a roadside near Cobham (15) on one of our field meetings, and determined by Dr. A. Melderis. Although only a very rare casual, this species has been traditionally treated as a member of the British flora and described or illustrated in most of our text-books. When I revisited the spot at the end of August there were about 20 plants, several of which were exceptionally large. We have only one previous record, and that from the somewhat unsatisfactory habitat of a market garden. Another important Surrey record was the discovery of two plants of frog orchid, *Coeloglossum viride*, on Box Hill (15) by Dr. F. Rose. This has been seen at intervals on Banstead Downs but the only other records by members from our Area are old ones from Middlesex.

The records contributed by R. C. Wingfield are again an outstanding example of how much of interest can be found by the thorough investigation of a limited area by a botanist who is prepared to venture into places usually neglected, and to tackle the less easy groups with the aid of specialists. Several of his best finds again come from Mitcham Common (26). Here in the autumn of 1957 he found suffocated clover, *Trifolium suffocatum*, growing on gravel from which the top soil had been removed for the extension of a refuse tip. The specimen was identified by Dr. D. P. Young and the species is new to Surrey. During 1958 I searched for it unsuccessfully on several occasions, both with Mr. Wingfield and alone, though *Trifolium ornithopodioides* and *T. striatum* still grew in the place he indicated. On the same Common he showed me a fine clump of *Dryopteris lanceolatocristata* (= *D. spinulosa*), and a patch of marsh arrow-grass, *Triglochin palustris*, covering about 18 square yards. He also drew my attention to the hybrid horsetail, *Equisetum* × *litorale*, of which specimens were later confirmed by P. Taylor. Mr. Wingfield has also found Mitcham Common an excellent place for the study of water starworts. He has had material from there confirmed by J. P. Savidge as *Callitriche obtusangula*, *C. hanulata*, and *C. platycarpa* (the last two from a ditch on the golf course near the spot where I collected them many years ago) while he has also found *C. obtusangula* and *C. platycarpa* in Beddington Park (26).

Mr. Wingfield reports an uncommon willow-herb, *Epilobium lanceolatum*, determined by G. M. Ash as occurring for at least 2½ miles along the railway from Morden to St. Helier (26), a rare hybrid persicaria, *Polygonum mite* × *persicaria*, from Morden Hall (26), and a cudweed, *Filago spathulata*, as found in 1957 and confirmed by N. Y. Sandwith from Banstead Downs (26). His record of *Lysimachia punctata* from the Hogsmill reported last year (*L.N.*, 37, 183) was from Grid Square 26 (not 16, as printed). In the same year he found *Vulpia megalura*, confirmed Dr. A. Melderis per Dr. D. P. Young, at Beddington Corner (26). Other plants he collected in 1958 include:—*Salix caprea* × *viminalis* from Watermeads (26) det. Dr. R. Melville and near N. Cheam cemetery, det. D. P. Young; *Philadelphus coronarius*, Rocky Terrace, Mitcham (26); *Macleaya cordata* (Willd.) R.Br. from tip by Hogsmill (16) and Lower Morden tip (26); *Biscutella auriculata* Z. by Carshalton running-track

(26); *Plantago indica*, Garrett tip, Wandsworth (27); *Festuca longifolia*, det. Dr. A. Melderis, Mitcham Common (26); and *Ulmus coritana*, det. Dr. R. Melville, from Beddington Park (26). Amongst the plants of interest he has found in churchyards are mind-your-own-business, *Helxine soleirolii*, at Carshalton (26) and Croydon (36); while the fern *Cyrtomium falcatum* persists at Beddington churchyard (26).

As forecast in the *Hand List* (p. 354), *Calystegia dahurica* has now been found again in the London Area. Specimens collected by Miss B. A. Kneller from a roadside fence near Nutfield Station (34) have been named by Dr. S. M. Walters. It is known from Surrey just outside our Area by the Wey Navigation Canal near Pyrford (05) where I found it in 1957. In chalk scrub near Warlingham (35), R. A. R. Clarke has found *Brunnera macrophylla* (Adam) I. M. Johnston—his specimens were named by Dr. D. P. Young. Dr. Young reports *Oxalis debilis* Kunth as a garden weed at The Grange, Wallington (26) where it grows with *O. corymbosa*. R. A. Boniface has found *Trifolium ornithopodioides* on Esher Green (16). Mrs. J. E. Smith has also sent in records of interesting plants from the Esher district—these include white horehound, *Marrubium vulgare*, on Ditton Green (16), and two mallows, *Malva pusilla* and *M. parviflora*, from Esher (16), and Littleworth Common (16) and Arbrook Lane (16), respectively. She sent me specimens of these. With Mrs. B. Welch she found yellow vetchling, *Lathyrus aphaca*, on the disused railway at Chessington (16). Mrs. Welch reports *Oenanthe aquatica* from between Chertsey and Thorpe (06).

We are indebted to Dr. C. West for a note on the puzzling hawkweeds which grow along the Brighton Road near Coulsdon (25). He tells us that the alien *H. scotostictum* Hyl. (formerly known as *H. praecox* Sch.-Bip.) still grows there freely, accompanied by *H. strumosum* (Ley ex W. R. Lint.) Ley, *H. lepidulum* (Stenstr.) Omang, *H. exotericum* Jord., and *H. maculatum* Sm. It is therefore not surprising that several botanists have collected different species from there! During the summer I was especially interested in the series of sessile oakwoods on the Dulwich Estate (37) which are the subject of a paper elsewhere in this issue of the *London Naturalist*. The unusual plants found there included a wood-rush, *Luzula forsteri*, an uncommon hybrid dock, *Rumex obtusifolius* × *sanguineus*, and an excellent series of willow-herbs including *Epilobium roseum*, *E. montanum* × *roseum*, *E. lamyi*, and *E. adenocaulon* all confirmed by G. M. Ash. Elsewhere in the county I was pleased to see two fine clumps of houseleek, *Sempervivum tectorum*, on the roof of an old cottage at Ashted (15), and *Pyracantha coccinea* in a clump of bushes in the middle of Banstead Downs (26) where, from the absence of houses and gardens near, it is likely to be bird-sown. E. Milne-Redhead reported self-sown seedlings of *Chamaecyparis Lawsoniana* (Murr.) Parl. (see below under Middlesex) from a wall near Queen's Cottage, Royal Botanic Gardens, Kew.

V.-c. 18, SOUTH ESSEX.

From Epping Forest there are two important additions to our records:—B. T. Ward reports *Juncus tenuis* from near Wake Valley Pond (49), and marsh plume thistle, *Cirsium dissectum*, from a woodland ride at Strawberry Hill (49). He also found *Scirpus setaceus* in South Weald Park (59) and Thorndon Park (69) and an alien toothwort, *Lathraea clandestina*, well established on elms and poplars near Great Warley Street (59).

Although about $1\frac{1}{2}$ miles outside our Area, mention must also be made of the important discovery of a fine colony of autumnal squill, *Scilla autumnalis*, near Orsett (68) by J. & P. C. Hall in a habitat where it appears to be native. This beautiful species is well known at Hampton Court, Middlesex, and Ham and Molesey, Surrey, and considered in relation to the old localities about Blackheath and Shorne in Kent, the new station fits in with a distribution pattern on alluvial soils on both sides of the Thames.

The old refuse tip near Barking, which has produced so many aliens in the past, has been dull since tipping ceased, but in 1958 part was levelled and in a limited area a most interesting colony of wool adventives appeared. Amongst an abundance of medics, *Medicago polymorpha*, *M. arabica*, and *M. minima* (in several forms), there were plants of *Xanthium spinosum*, *Carthamus lanatus* L., *Solanum eleagnifolium* Cav. (new to the British list), *Cryptostemma calendulaceum* (L.) R.Br., and *Chenopodium hircinum*. This association of species might be expected in districts such as Bradford where refuse from the wool industry is dumped, but the only comparable occurrence in the London Area was in 1948 and 1949 when shoddy was used as manure in planting fruit trees near Hextable, Kent. I would be very glad to hear from any member who can suggest a likely industrial source for wool waste dumped near Barking. At the new Barking tip (48) which is in active use, B. T. Ward and E. Saunders found a large patch of Japanese hop, *Humulus japonicus* Sieb & Zucc., and in their company I collected *Amaranthus blitoides* S. Wats., which was identified by J. P. M. Brenan. A still newer refuse tip near Wennington (58) produced vast quantities of bird-seed aliens—a tribute to the increase in the keeping of cage birds in London homes. Amongst other grasses there was an exceptional quantity of *Panicum frumentaceum* (Link) Trimen, which is becoming commoner on our tips. On a visit with S. T. Jermyn we collected *Nicandra physaloides*, *Chenopodium hircinum*, and *Amaranthus quitensis* H.B.K.—the last determined by J. P. M. Brenan. On sandy ground near this tip Scotch thistle, *Onopordon acanthium*, was common.

V.-c. 19, NORTH ESSEX.

Very welcome additional records have been received from this somewhat neglected part of our Area. On Epping Long Green (40), E. Saunders found *Cyperus longus*, and P. C. Hall and R. M. Payne, *Veronica anagallis-aquatica*. R. M. Payne also reports *Vulpia myuros* from Fishers Green (30), lady fern, *Athyrium filix-foemina*, from Parndon Wood (40), and *Poa compressa* from Waltham Abbey on old walls (30). On our field meeting, P. C. Hall also found corn crowfoot, *Ranunculus arvensis*, near Parndon Wood (40). A. Vaughan sends records of honewort, *Ceratophyllum demersum* from the River Lea between Rye House and Broxbourne (30) (also in v.-c. 20), a St. John's wort, *Hypericum tetrapterum*, from Galley Hill Wood (30), and white melilot, *Melilotus alba*, from Nazeing Gravel Pits (30).

V.-c. 20, HERTS.

Interesting native plants reported during the year include narrow-leaved hemp-nettle, *Galeopsis angustifolia*, found on a roadside at Totteridge (29) by D. J. Hinson and confirmed by D. H. Kent, Herb Paris, *Paris quadrifolia*, found by J. G. Dony in Berry Grove Wood near Wat-

ford (19), and a grass, *Deschampsia flexuosa*, in Bishops Wood near Harefield (09) found by J. G. Dony and D. H. Kent. On a railway bank near Hadley Wood (29), J. G. Dony and B. Clay found *Medicago minima*. A rare alien allied to the mallows, *Anoda cristata* Schlecht. var. *brachyantha* (Reichb.) Hochr., was found on a refuse tip near Bushey (19) by R. A. Graham, R. M. Harley and D. H. Lewis. This was also collected near Evesham this year, and so far as I know the only other British records are from near Bristol. A particularly interesting discovery was strapwort, *Corrigiola litoralis*, in abundance on a railway track near Barnet (29) where it was found by J. G. Dony. Strapwort is a very rare native plant best known from Slapton Ley in Devon, but I have seen it on a railway track at Freshfield, Lancs., where it persisted for a good many years, and it has been found this year over miles of railway tracks in Yorkshire. It is well known in other countries as a railway alien and search should be made for it on tracks elsewhere in our Area.

V.-c. 21, MIDDLESEX.

One of the most interesting plants found recently was water avens, *Geum rivale*, from a ditch near Perry Oaks (07) reported by Mrs. E. A. Briggs and Mrs. C. E. Missen. This species though common in many parts of Britain is extremely rare in the London Area. D. J. Hinson found climbing corydalis, *Corydalis claviculata*, abundant in a field at Mill Hill (29). The only previous certain record for this species from Middlesex was as an introduction on a bombed site in 1950. D. Murray found *Crepis nicaeensis* on a bank outside Chiswick House grounds (27)—we are grateful to R. D. Meikle for the determination of the specimen. D. Murray also reports a hawkweed, *Hieracium diaphanum*, named by Dr. C. West, from the station yard at Kew Bridge (17). D. H. Kent found self-sown plants of *Chamaecyparis lawsoniana* (Murr.) Parl. (new to the British list) on old walls at Harrow-on-the-hill (18) and West Drayton (07) and two stonecrops—*Sedum spurium* (det. W. T. Stearn) as a large well established patch at Hanger Hill, Ealing (18), and *Sedum dasyphyllum* on an old wall at Isleworth (17). A. Vaughan reports sea club-rush, *Scirpus maritimus*, as well established in Trent Park lake, Enfield (29), and Mrs. E. A. Briggs sends a record of *Rudbeckia laciniata* from the riverside between Perry Oaks and Stanwell (07). D. McClintock has contributed a list of 84 species seen by him in 1958 in Eaton Square, S.W., which is a reminder that many plants can still be found in the centre of London. The record of "*Sagina pallida*" from Regents Park in the last report (*L.N.*, 37, 185) should be corrected to read *Stellaria pallida*.

V.-c. 24, BUCKS.

Large bittercress, *Cardamine amara*, is reported by Mrs. E. A. Briggs as found in 1955 near Colnbrook (07), while B. P. Pickess and J. W. Donovan record a patch of *Veronica filiformis* by the River Colne on Harefield Moor (08) (in V.-c. 21 also).

We are grateful to the following for their contributions during the year: G. M. Ash, K. A. Beckett, R. A. Boniface, J. P. M. Brenan, Mrs. E. A. Briggs, Mrs. W. I. Brewer, R. A. R. Clarke, B. Clay, C. L. Collenette, J. W. Donovan, Dr. J. G. Dony, L. M. Glen, the late R. A. Graham, Mrs. J. Hall, P. C. Hall, V. F. Hancock, R. M. Harley, D. J. Hinson, S. T. Jermyn, Miss L. J. Johns, D. H. Kent, Miss B. A. Kneller, D. H.

Lewis, J. E. Lousley, D. McClintock, G. A. Matthews, R. D. Meikle, Dr. A. Melderis, Dr. R. Melville, E. Milne-Redhead, Mrs. C. E. Missen, D. Murray, R. M. Payne, B. P. Pickess, Dr. F. Rose, N. Y. Sandwith, E. Saunders, J. P. Savidge, Mrs. J. E. Smith, C. A. Stace, W. T. Stearn, P. Taylor, A. Vaughan, Dr. S. M. Walters, B. T. Ward, Mrs. B. Welch, Dr. C. West, R. C. Wingfield, Dr. D. P. Young.

Stane Street At Morden, Surrey

By D. J. TURNER

THE road from London to Chichester, known as Stane Street, is the most fully explored of the Roman roads in the London area (Margary, 1948 and Wimbolt, 1936). However there have been no recorded discoveries of remains of this road between Newington Causeway (Darlington, 1955) and Pylford Bridge, North Cheam (Margary, 1948, p. 76). A possible course between these points has been suggested but not proved. Foundation trenches cut across this line at Clapham failed to produce any positive evidence (Witherby, 1949).

At the southern end of Morden Park there is an apparent agger approximately on the line of the road as suggested by S. E. Winbolt. The Archaeological Section decided to investigate the position of the road within the park. The Merton and Morden U.D.C., who own the park, and the Merton and Morden Historical Society have given the Section every possible assistance throughout and our thanks are due to them.

In the first instance an attempt was made to find traces of the road by probing across the park to the west of the George Inn. This was unsuccessful as there were beneath the turf at this point the remains of buildings, probably destroyed when the park was laid out in the 18th century. Probing in the region of the "agger" south of the East Pyl brook gave more positive indication.

Permission was then obtained to carry out a series of excavations across the suggested line of the road. In October, 1958, two partial sections were cut, the work being carried out by members of the Surrey Archaeological Society, the Merton and Morden Historical Society and the L.N.H.S.

The first section was across the suggested line close to Lower Morden Lane and here remains of the road were found where predicted. The centre of the road could be plotted at a point 1 cm. from the southern margin and 12.5 cm. from the eastern margin of O.S. 1: 2500 sheet TQ2467. As all trenches had to be filled in before nightfall there was not time to cut a complete section. However sufficient excavation was carried out to show that at this point the remains consisted of a layer of loamy gravel some 26 ft. wide and 13 ins. thick at its thickest point, which was about 10 ft. from the west edge of the remains. Some traces of a capping of flints was evident, the largest stones being about 3 ins. diameter. In the soil below the humus and immediately above the road (a layer 4-6 ins. thick) were a few chalk chips which did not appear in this layer away from the road. The top of the remains were between 8 ins. and 12 ins. below the surface. A curious feature was that the remains were not central to the apparent agger, the eastern edge being directly beneath the centre of the "agger." A surveyed profile of this "agger" showed

it to have more of the characteristics of a terrace with the road beneath the portion sloping away to the north-west.

A second section was cut some 300 yds. north-east in the low-lying ground to the north of the East Pyl. Work here was hampered by the waterlogged nature of the ground. Remains of the road were found at a depth of 17 ins., once more consisting of a layer of loamy gravel, this time only 21 ft. wide. The thickness of the layer could not be determined. However these remains were slightly off the line suggested by Winbolt. The centre of the road was found to be some 35 or 40 ft. west of the suggested line at a point 10.2 cm. from the southern margin and 7 cm. from the eastern margin of sheet TQ2467.

Further work has been projected for 1959 including at least one complete section of the road. I would like to thank all those who took part in the excavations, especially Mr. F. J. Collins who did the surveying and gave much invaluable help in many ways.

REFERENCES

- DARLINGTON, MISS I., 1955. St. George's Fields, *Survey of London*, 25. 1.
 MARGARY, I. D., 1948, *Roman Ways in the Weald*, London.
 WINBOLT, S. E., 1936, *With a Spade on Stane Street*, London
 WITHERBY, C. T., 1949, Stane Street in Clapham. *Sy.A.C.*, 50. 151.

Holocene Mollusca from Plumstead Marshes

By J. S. SHILLITOE, A.M.Inst.B.E., F.G.S.

IN 1957 an investigation was carried out in Plumstead Marshes, half a mile N.W. of Abbey Wood Station (Grid Ref. TQ.465795) to ascertain the geotechnical properties of the underlying strata for proposed constructional works. Three borings, each 30 ft. deep and 6 inches in diameter, were put down, from the surface at c. 5 ft. O.D., through the Post-Glacial alluvium into, but not penetrating, the Thames gravel. From these boreholes, spaced about 200 ft. apart at the apices of a triangle, undisturbed cores, 18 inches long and 4 inches in diameter, and subsidiary disturbed samples were taken. The following sections were revealed :

<i>Bore A</i>		<i>Bore B</i>		<i>Bore C</i>	
Soil	4' 0"	Soil	4' 0"	Soil	4' 0"
Black brown		Black smelly		Mottled black	
woody peat	15' 0"	silty clay	4' 6"	grey clay	3' 0"
		<i>Shelly clay</i>	1' 0"		
		Grey silty clay	5' 6"		
Gravel	11' 0"	Gravel	15' 0"	Gravel	23' 0"

It is seen that the sections showed great variation in such a short distance, the thickness of the beds above the gravel varying from 7' 0" to 19' 0". Shells were found only in bore B. Though numerous borings were subsequently put down in the area, no further shells were found. The bed containing the shells was a soft black slightly smelling silty clay, the black colour being due to well decomposed vegetation. Along the upper surfaces of the beds in Bore B, numerous "pseudo-nodule" structures (Kuenen, 1958) were seen, all of similar material except for one composed of yellow "foreign" clay, and 0.5 inch in diameter, and owe their origin to the compaction and consolidation of the underlying clay.

The following freshwater mollusca were kindly identified by Mr. M. P. Kerney, B.Sc. :

Gastropoda

Valvata cristata Müller. C.
V. piscinalis (Müller). C.
Bithynia tentaculata (Linné). C.
B. leachi (Sheppard). C.
Lymnaea peregra (Müller). C.
Planorbis laevis Alder. R.
P. albus Müller. R.
P. crista (Linné). C.
Segmentina complanata (Linné). R.

Lamellibranchia

Pisidium nitidum Jenyns. C.
P. casertanum (Poli). C.
Anodonta sp. R.

C. = Common, more than 10 specimens.

R. = Rare, less than 10 specimens.

With the exception of *Planorbis laevis*, all these species were recorded by Spurrell (1889) and Woodward (1890) from the Holocene of nearby Crossness. According to Ellis (1951), there is no confirmed record of *Planorbis laevis* in the living fauna of W. Kent, and this appears to be its first Holocene W. Kent record. Since the beginning of Post-Glacial times, this species has tended increasingly to have a more northerly distribution in Britain.

These three boreholes suggest the following sequence of events:

1. Swift flowing water, capable of carrying the gravel and of local scouring, producing the highly irregular top surface of the Thames gravel.
2. Sluggish well oxygenated water with abundant marsh vegetation depositing the grey and black clays and supporting a local molluscan fauna.
3. Stagnant water with peat formation.

Such a sequence would be the result of the rising Post Glacial sea-level.

REFERENCES

- ELLIS, A. E., 1951, Census of the Distribution of the British Non-Marine Mollusca. *Journ. Conch.*, 23, 171-244.
 KUENEN, P. H., 1958, Experiments in Geology. *Trans. Geol. Soc. Glasgow*, 23, 1-28.
 SPURRELL, F. C. J., 1889, On the Estuary of the Thames and its Alluvium. *Proc. Geol. Ass.*, 11, 210-230.
 WOODWARD, B. B., 1890, On the Pleistocene (Non Marine) Mollusca of the London District. *Proc. Geol. Ass.*, 11, 344-49.

Some Entomological Records from the Cripplegate Bombed Sites, City of London

By E. W. GROVES

INTRODUCTION AND GENERAL DISCUSSION

The City Bombed Sites Survey organized by the Ecological Section of the London Natural History Society terminated as such in 1957, although some members still continued various studies they had started on the sites in the Cripplegate area.

In the past twelve months the rebuilding of the City of London, especially between the Barbican and Queen Victoria St., has increased to the extent that now (March, 1959) most of the basement sites at Cripplegate, visited in the past by the Survey team, have either been built on or have been cleared preparatory to the laying of foundations. The removal of the vegetation from these sites means now the cessation of work amongst those individuals who had carried on after the official closure of the Survey.

The War years subsequent to the bombing of London in 1940 and 1941, and then the post-war period of the Society's Survey from 1947 to 1957, provided an opportunity probably unique in this generation for botanists, entomologists and ecologists to study these City bombed sites—first the vegetation that colonized them, then later the arrival of the faunal population.

Prior to the War, the Cripplegate area was one of the most closely built-up parts of the City, with tall office blocks and warehouses, often with only narrow streets between. The aerial bombardment caused widespread destruction, and when the raiders had left and demolition workers cleared away obstructing rubble many acres of open basements and broken walls remained. It was not long before the first plants began colonizing these opened-up areas.

A number of papers on the succession of the vegetation on these sites has appeared in the *London Naturalist* and elsewhere and it is not proposed to discuss them here. A useful bibliography of these together with other papers relating to the natural history of London is given by Fitter and Lousley (1953). Much less attention has been paid to the insects and other invertebrates. It is, however, worthwhile summarizing that which has so far been published as it has a direct bearing on the subject of the present paper. The butterflies and moths (Macrolepidoptera) were studied by D. F. Owen (Owen, 1949, 1951a, 1951b) and the true flies (Diptera) by L. Parmenter (Parmenter, 1954). A special investigation on the droneflies (Diptera-Syrphidae) was later made by A. W. Jones (Jones, 1955) and some notes appeared on a preliminary study made by P. W. E. Currie on the sawflies (Hymenoptera-Symphyla) (Currie, 1952). A. E. Le Gros published some work on the spiders (Le Gros, 1950) and the few species of snails and slugs (Mollusca) occurring on the bombed sites were recorded by the late Lt.-Col. C. J. F. Bensley (Bensley, 1952).

Several orders of insects, including some of the larger ones such as beetles (Coleoptera) and bees and wasps (Hymenoptera-Aculeata), failed to attract students to the extent of some of the groups mentioned above. Nevertheless some attention has been paid, even if only in the latter years of the Survey, to a few of the orders not already dealt with in the L.N.H.S. Cripplegate Survey Reports (1947-54) and the results are

now given in this paper for the first time. Whilst it has not been possible to contact all those who have made entomological collections on these bombed sites, it was considered worthwhile to publish here those records that could be reasonably gathered together, so that any potential value they may have to future students of wasteland ecology might not be lost.

CLIMATE, IMMIGRATION AND ESTABLISHMENT

Before presenting a systematic list of the species recorded, some remarks should be given on the climate of the bombed sites, the mode of introduction of the invertebrate fauna, and their establishment on arrival.

The area outside the square mile around Cripplegate suffered less from the bombing. Heat from chimneys of the buildings there is likely to raise the temperature of the surrounding atmosphere which in turn must have its effect on the bombed sites close by. But the bare nature of these sites allows the ground surface to become heated or cooled very rapidly. Again many of the sites are below ground level and do not receive the full force of the wind as they would if the area were completely flat. Some basements are also partially sheltered by the few buildings that had escaped war-time destruction. All these factors provide the bombed sites with a greater extreme in climate than that of any area of similar size in the open country, and undoubtedly effect the colonizing vegetation and its insect population.

With regard to their introduction, a few insects could have been derived from stock that persisted in gardens and churchyards in the area before bombing (Owen, 1954) but as has been suggested (Parmenter, 1954) the devastation in the square mile of this part of the City was so extensive that immigration from Outer London is more likely to have accounted for the greater proportion of species recorded here since the War. Some of these immigrants such as the majority of the butterflies and moths, the beetles and the bees and wasps, which are strong fliers, are likely to have reached the sites unaided. On the other hand the weaker flying species of Hymenoptera, the plant bugs (Heteroptera), the aphids (Homoptera-Aphidae) and the lacewings (Neuroptera) have probably all been derived from stock that originally arrived with the assistance of a prevailing wind. The work of Dr. C. G. Johnson on the aerial trapping of insects at different altitudes at Cardington, Bedfordshire, has shown that certain species are carried up to considerable heights and thus transported long distances (e.g. Johnson and Southwood, 1949, on Heteroptera).

The shallow nature of the substrate in most of the basement sites makes the conditions at Cripplegate arid, and unfavourable for the establishment of some species. This has been noted in particular in the case of the sawflies most of which normally inhabit marshy areas and woodlands (Currie, 1952). The degree of pollution in Central London is particularly heavy and is likely to have been a barrier to some species of insects which might otherwise have established themselves. Bristowe (1939) suggests that the absence or rarity of common species of spiders in Central London is due to heavy soot deposits. The shrubs and trees on the sites tend to become dry and shrivelled by August or even earlier, thus reducing the available plant food for many insects. Interspecific competition becomes keen particularly where two or more species are competing for the same food plant. For example, some lepidoptera and sawfly larvae when they are together on sallow are often competing for the same food to the extent that their numbers cover the bushes and the branches soon become completely stripped of foliage (Owen, 1954).

Nevertheless many species succeed in multiplying rapidly after establishment to the point that they become more abundant than in their usual habitats. The absence of large numbers of parasites and predators at Cripplegate makes such increases possible.

SOME ENTOMOLOGICAL RECORDS FROM THE CRIPPLEGATE BOMBED SITES SYSTEMATIC LIST

As has been mentioned earlier, had more entomologists come forward to avail themselves of this unique opportunity for the study of insect colonization of the bombed sites, so much more could have been achieved in the orders such as the Coleoptera, Hymenoptera and Heteroptera. All that can be offered is a list of species together with data for some and notes.

COLEOPTERA

The records given below are those of F. Bancroft, E. W. Groves and D. G. Hall, and are for the adult insect unless otherwise stated. Most of the beetles were obtained by turning over stones, old bricks, etc., early in the year and by beating and sweeping vegetation during the summer months. Some of the species listed are those to be expected when collecting by these methods but the presence of others shows how quickly beetles are capable of occupying new niches in such deposits as man's refuse, even if the nature of the substance allows use only for a short while. This is instanced by the carrion beetles recorded from the heaps of whitewash, the raw fish and the discarded bacon hock.

CARABIDAE

- Harpalus aeneus* (Fab.) 23/5/55 (D.G.H.); 21/4/56 (F.B.).
Amara plebeja (Gyll.) 26/5/56 (F.B.).
A. similata (Gyll.) 24/9/55 (D.G.H.).
A. communis (Panz.) 21/5/55 (D.G.H.); 21/4/56 (F.B.).
A. aenea (Deg.) 21/5/55 (D.G.H.); 21/4/56, 26/5/56, 23/6/56 (F.B.).
A. tibialis (Payk.) 21/4/56 (F.B.).
Bradycellus verbasci (Dufts.) 23/4/55, 21/5/55, 18/6/55 and 24/9/55 (D.G.H.); 21/4/56 (F.B.).
B. sharpi Joy 21/4/56 (F.B.).
B. harpalinus (Serv.) 26/5/56 (F.B.).
Platyderus ruficollis (Mn.) 23/5/55 (D.G.H.).
Metabletus foveatus (Geof.) 23/4/55 (D.G.H.); 21/4/56 (F.B.); 21/4/56, beneath a stone (E.W.G.).

DYTISCIDAE

- Hydroporus palustris* (L.) 18/6/55 from standing water, basement, White Cross St. (A. W. Jones per D.G.H.).

STAPHYLINIDAE

- Oxytelus complanatus* Eric. 24/9/55 (D.G.H.).
Xantholinus linearis (Oliv.) 23/4/55, 21/5/55 (D.G.H.).
Philonthus fuscipennis Mann. 21/5/55 (D.G.H.).
Staphylinus (Ocypus) olens Muell. 23/4/55, 24/9/55 (D.G.H.); 21/4/56 (larva), 26/5/56 (F.B.); 21/4/56 larva beneath an old brick (E.W.G.).
Tachyporus nitidulus (Fab.) 23/4/55, 21/5/55 (D.G.H.).
Oxypoda lurida Woll. 21/5/55 (D.G.H.) (det. W. O. Steel).
Aleochara bilineata (Gyll.) 24/9/55 in a heap of decaying whitewash (D.G.H.).
A. cf. lata Grav. 23/6/56 on raw fish (F.B.).

CLERIDAE

- Necrobia violacea* (L.) 24/9/55 in a heap of decaying whitewash (D.G.H.); 26/5/56 on old bone (F.B.); 26/5/56 in skin of decaying bacon hock (E.W.G.).

NITIDULIDAE

- Meligethes aeneus* (Fab.) 18/6/55 on flowers (D.G.H.).
Nitidula bipunctata (L.) 26/5/56 on decaying bacon hock (E.W.G.).
N. rufipes (L.) 26/5/56 on old bone (F.B.); 26/5/56 on decaying bacon hock (E.W.G.).
N. carnaria Schall. 26/5/56 on decaying bacon hock (E.W.G.).
Omosita discoidea (Fab.) 24/9/55 in heap of decaying whitewash (D.G.H.); 26/5/56 on old bone, 23/6/56 on raw fish (F.B.).

COCCINELLIDAE

- Rhyzobius litura* (Fab.) 21/5/55 (D.G.H.).
Adalia bipunctata (L.) 23/4/55, 18/6/55 (D.G.H.); 26/5/56 on *Urtica dioica* (E.W.G.).
Coccinella septempunctata (L.) 24/9/55 (D.G.H.).

OEDEMERIDAE

- Oedemera lurida* (Marsh.) 18/6/55 (D.G.H.); 18/6/55 in flowers (E.W.G.).

SCARABAEIDAE

- Geotrupes stercorosus* (Scrb.) 24/9/55 (D.G.H.).

CHRYSOMELIDAE

- Gastrophysa polygoni* (L.) 26/5/56 on leaves of *Centaurea scabiosa* (E.W.G.).
Cassida rubiginosa Muell. 18/6/55 (D.G.H.).

CURCULIONIDAE

- Apion rufirostre* (Fab.) 18/6/55 (D.G.H.).
A. radiolus Kirby 18/6/55 (D.G.H.).
A. miniatum Germ. 26/5/56 (F.B.).
Otiorrhynchus sulcatus (Fab.) 21/5/55 (D.G.H.); 21/4/56, 26/5/56 (F.B.).
Curculio (*Balanobius*) *salicivorus* (Payk.) 18/6/55 (D.G.H.).
Ceuthorhynchus assimilis (Payk.) 18/6/55 (D.G.H.).

HEMIPTERA-HETEROPTERA

Of the plant bugs that occurred at Cripplegate most were taken by beating shrubs and trees or by sweeping low herbage in the various basements and on open sites. A few plants were searched individually e.g. *Artemisia vulgaris*, *Chenopodium album*.

T.R.E. Southwood has shown how extensive flight movement occurs of short range in many species of Heteroptera and of a longer duration in some others. *Adelphocoris lineolatus*, *Calocoris norvegicus* and several species of *Lygus* have an especially high level of flight activity (Southwood 1959 in press). This probably explains the uniformity in distribution of the species over the different bombed sites examined.

No serious ecological study could be attempted owing to the limited time available for visiting the sites. There were undoubtedly more species present than given in the following list. The records below are those of E. W. Groves and are for the adult insect unless otherwise stated. Roman numerals refer to the different nymphal stadia and the nomenclature follows that of Southwood and Leston (1959 in press).

PIESMIDAE

Piesina quadratum (Fieb.) 28/7/56 ♂♂ and ♀♀.

This interesting species was swept in some numbers (both sexes) on a patch of *Chenopodium album* agg. in one of the basement sites. It is more usually met with in coastal marshes and is only of rare occurrence inland. Southwood (1959 in press) notes an allied species *P. maculatum* (Costa) as having a high level of flight activity but has no direct evidence for *P. quadratum*. The latter is, however, known on the Continent to fly extensively. It has been recorded on the marshes further down the Thames at Plumstead (Masse, 1954).

TINGIDAE

Tingis ampliata (H.-S.) 18/6/55 on *Cirsium arvense*.

ANTHOCORIDAE

- Anthocoris nemorum* L. 18/6/55; 23/7/55 adults and nymphs (V).
Anthocoris sp. 23/7/55 nymphs of an unidentified Anthocorid not *A. nemorum*.
Orius niger (Wolff.) 18/6/55 on *Artemisia vulgaris*.

MIRIDAE

- Monalocoris filicis* (L.) 23/7/55 on *Pteridium aquilinum* in one basement site only.
Deraecoris ruber (L.) 23/7/55.
Megalocoleus molliculus (Fall.) 23/7/55 nymphs (IV and V).
Amblytulus nasutus Kb. 18/6/55.
Plagiognathus albipennis (Fall.) 18/6/55; 23/7/55; 28/7/56 both ♂♂ and ♀♀ abundant on *Artemisia vulgaris*.
P. arbustorum (Fab.) 23/7/55 adults and nymphs (V).
Heterotoma merioptera (Scop.) 23/7/55.
Lygus maritimus (Wagn.) 18/6/55; 23/7/55; 28/7/56 both ♂♂ and ♀♀.
L. rugulipennis Popp. 26/5/56.
Liocoris tripustulatus (Fab.) 18/6/55; 23/7/55 adults and nymphs (V); 26/5/56 ♂♂ and ♀♀ on *Parietaria diffusa*; 28/7/56 ♂♂, ♀♀ and nymphs (IV and V).
Orthops campestris (L.) 28/7/56 nymphs (IV and V).
Calocoris norvegicus (Gmel.) 28/7/56 ♂♂, ♀♀ and nymphs (V).
Adelphocoris lineolatus (Goeze) 23/7/55 adults and nymphs (III-V); 28/7/56 nymphs (I-V).
Phytocoris varipes (Boh.) 23/7/55 nymphs (V).

HEMIPTERA-HOMOPTERA (AUCHENORHYNCHA)

These leaf-hopper records are of E. W. Groves and the nomenclature used is that of China (1950).

- Philaenus spumarius* L. 18/6/55; 23/7/55; 26/5/56 a pair in cop.
Aphrodes bicinctus (Schr.) 23/7/55.
Macropsis graminea (Fab.) 28/7/56.

HYMENOPTERA

The records are of A. E. Le Gros and E. W. Groves. Most of the species were taken by sweeping.

ICHNEUMONIDAE

- Diplazon tetragonus* (Thb.) 28/7/56 ♂ dark form (E.W.G.).
D. laetatorius (Fab.) 18/6/55 ♀ (E.W.G.).
D. nigritarsis (Grav.) 18/6/55 ♂ (E.W.G.).

All three species are parasitic on hoverflies (Diptera-Syrphidae).

CYNIPIDAE

Callaspidia dufouri Gir. 18/6/55 (E.W.G.).

PROCTOTRUPIDAE

Helorus rugosus Thb. 28/7/56 (E.W.G.).

CHRYSIDAE

Omalus auratus (L.) 18/6/55 (E.W.G.).

FORMICIDAE

Lasius niger L. Common everywhere nesting under rubble and under loose bricks on top of walls (Le G.).

Lasius flavus Fab. A nest was found under a shrub in St. Giles churchyard in 1953 (Le G.).

VESPIDAE

Vespula germanica (Fab.) Sept. 1948 ♀. "This was the only 'yellow-jacket' seen during my visits to the Cripplegate sites." (Le G. in litt.).

SPHECIDAE

Stigmus solskyi Mor. June 1953 ♂ (Le G.).

Cemonius schuckardi Mor. June 1953 ♂ (Le G.).

Crossocerus elongatulus Van der L. 26/5/56 (E.W.G.).

NEUROPTERA

These lacewing records are of L. Parmenter.

Kinminsia subnebulosa (Steph.) 21/5/55; 27/8/55.

Chrysopa albolineata Kill. 18/6/55.

C. septempunctata Wesml. 27/8/55.

ORTHOPTERA

Chorthippus brunneus (Thb.). It has been suggested that this species which occurs in numbers on the bombed sites may have first reached the area in horses' nose-bags. It has certainly been present on the sites from 1946 to 1957 (Payne, 1958).

DERMAPTERA

Forficula auricularia L. Two specimens of the Common Earwig with eggs were dug up on one of the Cripplegate bombed sites by A. W. Jones in 1947 (Payne, 1958).

OTHER INVERTEBRATES

There can be no doubt that many species of smaller invertebrates such as centipedes, millipedes, woodlice, etc., must have been present on the bombed sites. Some have probably persisted from churchyards and the few gardens that were in the Cripplegate area before the War; a few may have arrived since the bombing. Only two records are at present available: one for a centipede *Lithobius forficatus* (L.) found beneath a brick, 21/4/56 (E. W. Groves), and the other for the woodlouse *Oniscus asellus* L., a specimen of which was discovered whilst searching amongst some broken tiles on the Fore St. site 26/5/56 (E. W. Groves).

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REFERENCES

- BENSLEY, C. J. F., 1952, Mollusca on the City Bombed Sites. *London Naturalist*, 31, 83-84.
 BRISTOWE, W. S., 1939. *The Comity of Spiders*, 1, London.
 CHINA, W. E., 1950, Check List of British Auchenorrhyncha. *Ent. mo. Mag.*, 86, 243-251 and corrections, *ibid.* (1951) 87, 280.
 CURRIE, P. W. E., 1952, The Sawflies of the Cripplegate Bombed Sites. *London Naturalist*, 31, 89-91.
 FITTER, R. S. R., and LOUSLEY, J. E., 1953, *The Natural History of the City*. London.
 JOHNSON, C. G., and SOUTHWOOD, T. R. E., 1949, *Proc. R. ent. Soc. Lond.* (A) 24, 128-30.
 JONES, A. W., 1955, Drone-fly visitors to the flowers in the City Bombed Sites. *London Naturalist*, 34, 154-157.
 London Natural History Society (1948-55). Cripplegate Survey Progress Reports, 1947-54. *London Naturalist*, 27-34.
 LE GROS, A. E., 1949, Notes on the Spiders of the Bombed Sites. *London Naturalist*, 28, 37-39.
 MASSEE, A. M., 1954, The Hemiptera-Heteroptera of Kent. *Trans. Soc. Brit. Ent.*, 11, 245-280.
 OWEN, D. F., 1949, The Macrolepidoptera of the Moorgate, London, Bombed Sites. *Entom.*, 82, 59-62.
 ———, 1951, Bombed Site Lepidoptera. *Entom.*, 84, 265-272.
 ———, 1952, The Lepidoptera of Cripplegate. *London Naturalist*, 31, 84-88.
 ———, 1954, A further analysis of the insect records from the London Bombed Sites. *Ent. Gaz.*, 5, 51-60.
 PARMENTER, L., 1954, The Flies of the Cripplegate Bombed Site, City of London. *London Naturalist*, 33, 89-100.
 PAYNE, R. M., 1958, The distribution of Grasshoppers and allied insects in the London area. *London Naturalist*, 37, 102-115.
 SOUTHWOOD, T. R. E., 1959 in press, Flight Activity of Heteroptera.
 SOUTHWOOD, T. R. E. and LESTON, D., 1959 in press, *Land and Water Bugs of the British Isles*. Warne.

Notes on the Behaviour of Hedgehogs in a Suburban Garden

By D. A. ROOK

IT had always been apparent that hedgehogs (*Erinaceus europaeus*) were common in my garden. Mysterious rustling, ticking and snuffling noises outside the windows at night were usually, on investigation, found to emanate from this animal. It was not, however, until July, 1957, that I began to take more than a casual interest in them, because in that month I accidentally saw them engaged in some very interesting behaviour.

The garden in question is in the outer London suburbs, but in a semi-rural area, inasmuch as there is considerable farmland within half a mile. It is 100 feet long by 45 feet wide, and the direction of its main axis is N.W. by S.E. On the south-western boundary there is a hawthorn hedge, more or less clipped and about four feet high; on the north-eastern side and along the end of the garden are mixed shrubs and small trees. The garden itself is about two-thirds lawn with fruit trees and a large weeping willow (*Salix babylonica*). There is a strip of vegetable garden containing mostly brassica, and a few flower beds. There are always plenty of garden pests, such as slugs, snails and various kinds of aphids. A concrete-contained pond, six feet by three feet by three feet, one end of which is built up to provide a drinking and bathing place for birds, is also used for drinking by hedgehogs.

The evening of July 27, 1957, was very warm and still, after a hot sunny day. At about 9 p.m. (B.S.T.) I heard an unusually loud snuffling noise outside the window. I went out with a torch, and found two hedgehogs apparently engaged in some mysterious ritual on the concrete path. I sat down three feet away and watched them by the light of the torch. It became clear that No. 1 was attempting to move round behind No. 2, which was resisting this manoeuvre by backing away round its protagonist. They were thus revolving round each other in a spiral, which gradually moved them off the path on to the lawn, while keeping them at right angles to each other. The one backing away seemed to be making the snuffling noise. They appeared to ignore the light of the torch, but when I spoke they would stop their gyrating for a moment, only to resume it again when I became silent.

While I watched, another hedgehog emerged from the north-eastern hedge, rushed at No. 1, struck it in the side and bowled it over. No. 1 instantly curled up and remained still, while No. 3 took its place in the ritual, which proceeded as before. More was to come. While No. 1 slowly uncurled and trotted off towards the south-western hedge, No. 4 came out of the north-eastern hedge and attacked No. 3. This animal, however, held its ground. The method of attack could then be seen. The attacker pushed its snout under the flank of its victim and heaved, evidently the intention being to roll it over. Would it then attempt to bite the exposed soft parts? In this instance the opportunity did not arise, for No. 5 appeared from the same direction and attacked and bowled over No. 4, after which it proceeded to overturn No. 3. No. 2 meanwhile moved off towards the north-eastern hedge, No. 5 followed it, and they both disappeared from view in the next door garden.

It seemed clear to me at the time that what I had seen was courtship behaviour, with four males fighting each other for the attention of a female. However, I have so far been able to find only one written reference to similar behaviour: I have not myself seen anything quite like it since. The reference referred to is in "The History of British Mammals" (Barrett-Hamilton and Wilson) and relates an account by the late Robert Service in the *Annals of Scottish Natural History* 1901, 232-3:—

"On May 15 he (Service) found a couple 'snuffling' at each other, and they then began a monotonous 'mill-wheel walk' with noses opposed. This circling continued for three-quarters of an hour by the watch, and after an absence of twenty minutes they were found sixty yards away, still rolling over and worrying each other as viciously as ever he had seen dogs fighting."

The writers interpreted this as aggressive behaviour between males. However, it would be interesting to know what happened during the "absence of twenty minutes": the two hedgehogs Mr. Service saw fighting on his return were not necessarily the same as the pair he saw performing the "mill-wheel." During the performance I have described, in which five distinct individuals took part (four were all present at the same time, and the fifth moved away in the opposite direction and would not have had time to double back and enter the battle again while I watched), I saw a sixth emerge from the hedge further down the garden and sniff round a bird trap.

Two subsequent "snuffling parties" which I recorded (both in September) bore more resemblance to Mr. Service's account in so far as the creatures were nose to nose, but with one advancing and the other retreating. Only one of these incidents appears to me to be worth enlarging upon.

The evening of September 9, 1958, was again warm and still, and I had already photographed a small hedgehog feeding on the lawn when the usual snuffling attracted my attention. Two large hedgehogs were performing on the vegetable garden. I stood and watched them for a while until a third animal appeared trotting rapidly down the path, heading for the "snuffling party." It walked right up to my feet, and only halted and froze when its snout was practically touching my wellington boots. I thought it was attracted to the others by the snuffling sound. In this incident, I confirmed that the retreating animal made the sound, because I could clearly see the bellows movement of its sides in time to the snuffling.

The only thing common to all these incidents was the sound, and I am inclined to wonder whether it has some special significance in the breeding behaviour of the hedgehog.

Another thing about these garden hedgehogs which I found interesting was their reaction to my presence. It will be observed that on the two occasions I have quoted at length the weather was warm and still. On every other occasion of which I made a written note, a close approach to or by a hedgehog only took place on such an evening. When there was the slightest breeze the hedgehog would hurry away or freeze before I could reach it (what I call "freezing" is probably the initial stage of rolling up—the animal becomes motionless with its snout pointing downwards). There seemed to be a correlation between the strength of the breeze and the nearest approach the animal would tolerate. Being on its windward or leeward side made no difference; but this may have been because the breeze was reflected back by the hedges and walls surrounding the garden. I concluded from this that the hedgehog had a keen sense

of smell, and that it apprehended the approach of enemies more by this means than by any other; although to a lesser degree it also reacted to sound.

Several of these hedgehogs were infected by ticks behind their ears—one creature had four, two behind each ear, each tick as large as a fully grown green pea.

One day, while cutting back a cultivated blackberry plant which was rioting in the hedge, I found a curious structure on the ground. It looked like a miniature native grass hut, oval in section, with an entrance hole at one end. Later in the day I found that the hole was blocked by dried grass, and, putting my finger in, I felt a movement inside. Blowflies were buzzing round the hole. As dusk fell I watched this erection, and at 8.30 p.m. (B.S.T.) heard coughing, sneezing, and a curious bird-like chirrup coming from it. At 9.10 a hedgehog pushed its way out and trotted off. This day-time hide-out was used for several days afterwards, but was eventually deserted. Its resemblance to an artefact was remarkable; but further consideration explained the nature of its construction. Evidently the tenant had burrowed its way under a mat of dead couch-grass, and the resulting mound merely followed the shape of the hedgehog's body, consolidated by its turning round to emerge.

Many books refer to the hedgehog as a noisy animal, and describe it as grunting along the hedgerows and ditches. In my garden I have not heard them do this. Although they rustle about under the bushes and among dead leaves, they steal across the lawn like shadows. At the beginning of these notes I mentioned a ticking noise as emanating from them. It was a long time before I found out how this noise was made, but eventually I saw one doing it. The noise resulted from the creature scratching itself!

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I should like to thank both Miss E. M. Hillman and Dr. G. Beven for their encouragement which resulted in the writing of these notes, and for their kindness in reading and criticizing them.



“ Snuffling party ” — the animal nearest the camera has taken fright and has started to pull in its head.



13th September, 1958.

Photos by Miss D. A. Rook, September, 1958.

A Supplement to the Butterflies and Moths of London and Its Surroundings

By C. G. M. DE WORMS, M.A., Ph.D., F.R.I.C., F.R.E.S.

Part I

IT is already ten years since the "Butterflies of London and its Surroundings" was undertaken, in 1949, and five years since the Moths of the Area was begun, in 1953. During this period a number of new records have been made both of the rarer species and of the more prevalent ones. These have been largely due to the observations of several keen collectors, some of whom have been working light-traps etc., in parts of the Area from which few records have been hitherto forthcoming. In addition to these yet a large number of further older records for the Area have come to light in the earlier literature. These are equally interesting, since they throw light on the former distribution of many of the lepidoptera. Besides this an important contribution, since this work was begun, has been the appearance in the *London Naturalist* for 1954 of "A Preliminary list of the Macrolepidoptera of Bookham Common" by A. S. Wheeler (referred to in the text as Wheeler, *L.N.*, 1954). This is a part of the very comprehensive survey carried out in recent years on that locality by members of the London Natural History Society. All these factors which have been enumerated have made it desirable for a Supplement to the Lepidoptera of the London Area to be undertaken forthwith.

So that reference can be made in the original work to the description of the various species, in the ensuing parts the page is indicated after each name. For the Butterflies it denotes the pagination of the *London Naturalist* for 1949, while for the Moths it indicates the consecutive pages for the series of the five parts.

Where a species has not been previously recorded in one of the Vice-Counties, the word "Add" is placed before it. Thus "Add M.21" means the species has not been included before for Middlesex.

As before, the round brackets () denote that the species either no longer exists in the particular area or that it is a passing migrant.

BUTTERFLIES

Species originally described in the *London Naturalist* for 1949 (No. 29).

SATYRIDAE

Pararge aegeria Linn. The Speckled Wood. (p. 54). Add B.24.

MIDDLESEX. One seen in Syon Park, Brentford in 1957 (Pierce); also common in the Ruislip area (Minnion).

KENT. One seen in Plumstead High Street in 1952 (Rigden); formerly at Shooter's Hill (West, *Ent. Rec.*, 1906).

SURREY. Common near Chipstead and on Mickleham Downs (Vallins).

BUCKS. Taken near Chalfont St. Peter in 1956 (Ansorge).

Eumenis semele Linn. The Grayling. (p. 55). Add B.24.

MIDDLESEX. Several seen on Hounslow Heath (Pierce); occasionally near Ruislip (Minnion).

ESSEX. Seen in Epping Forest in July, 1869 (Meldola: Hope Dept. Collection, Oxford).

KENT. One seen in Abbey Wood in 1951 (Rigden).

SURREY. Common on Riddlesdown and Box Hill (West, *Ent. Rec.*, 1906); one seen on Wimbledon Common on July 21, 1953 (Sutton); very scarce in sandy places at Wimbledon (A. W. Jones, *London Naturalist* 1954, 34: 108); occasionally at Bookham Common (Wheeler, *L.N.*, 1954).

Melanargia galathea Linn. The Marbled White. (p. 55). Add M.21, H.20, B.24.

MIDDLESEX. Twice observed in the Ruislip area (Minnion).

HERTS. A flourishing colony in Whippendell Woods (Saunders).

BUCKS. Taken at Chalfont St. Peter regularly (Ansorge).

Maniola tithonus Linn. The Gatekeeper. (p. 56). Add B.24.

BUCKS. Common at Chalfont St. Peter (Ansorge).

Aphantopus hyperanthus Linn. The Ringlet. (p. 57). Add B.24.

SURREY. Common at Box Hill (van Emden) and at Mickleham Down (Vallins).

BUCKS. Abundant at Chalfont St. Peter (Ansorge).

NYMPHALIDAE

Argynnis euphrosyne Linn. The Pearl-bordered Fritillary. (p. 58). Add B.24.

ESSEX. Common near Loughton Camp (Vallins).

KENT. Formerly at Shooter's Hill (West, *Ent. Rec.*, 1906).

SURREY. Numerous on Bookham Common (van Emden); also on Chipstead and Mickleham Downs (Vallins); one seen basking on Wimbledon Common in May, 1945 (A. W. Jones, *London Naturalist*, 1954, 34: 108).

BUCKS. Flies freely near Chalfont St. Peter (Ansorge).

Argynnis selene Schiff. The Small Pearl-bordered Fritillary. (p. 59).

KENT. Near Shooter's Hill in the 1870's (West, *Ent. Rec.*, 1906).

Argynnis aglaia Linn. The Dark Green Fritillary. (p. 59). Add (I.L.), B.24.

INNER LONDON. Seen on a City Bombed site (D. Owen). *Entom.*, 1951, 84: 266).

HERTS. Common in the Whippendell Woods (Saunders).

KENT. Darenth Wood. (West, *Ent. Rec.*, 1906).

SURREY. Plentiful on Bookham Common in 1952 and 1953 (van Emden).

BUCKS. Numerous at Chalfont St. Peter in 1956 (Ansorge).

Argynnis cydippe Linn. The High Brown Fritillary. (p. 60). Add (I.L.).

INNER LONDON. One at Stoke Newington on July 27, 1924 (*Entom.*, 1929, 62: 111); one seen in Finsbury Circus on July 24, 1928 (C. N. Hughes, *id.* 53).

HERTS. Common in Whippendell Woods (Saunders).

SURREY. Common on Bookham Common in 1953 (van Emden).

Argynnis paphia Linn. The Silver-washed Fritillary. (p. 60). Add (I.L.), B.24.

INNER LONDON. One seen near the Natural History Museum in South Kensington on July 11, 1935 (E. Classey, *Entom.*, 1935, 68: 183); one near the Middlesex Hospital on July 21, 1949 (G. Cole); one seen in the Temple Gardens (Russell James, *Entom.*, 1940, 73: 213).

MIDDLESEX. Taken at Stanmore on July 31, 1894 (C. Rhoades, *Entom.*, 1894, 27: 245); plentiful near Ruislip (Minnion).

HERTS. Common in Whippendell Woods (Saunders).

ESSEX. Taken at Woodford in August, 1926 (Whittingham, *Entom.*, 1926, 59: 276).

KENT. One male in Abbey Wood in July, 1946 (Rigden).

SURREY. Banstead Woods (Vallins); one seen at Balham (Frohawk, 1925, 58: 271).

BUCKS. Chalfont St. Peter in 1957 (Ansorge).

Argynnis lathonia Linn. The Queen of Spain Fritillary. (p. 61). Add (K.16).

KENT. A specimen taken in Darenth Wood (E. Harper, *Entom.*, 1868/9, 4: 131).

SURREY. One seen at Sutton on August 17, 1943 (Frohawk, *Entom.*, 1945, 78: 21).

Euphydryas aurinia Rott. The Marsh Fritillary. (p. 61). Add (M.21), (K.16).

MIDDLESEX. Taken at Kingsbury by F. Bond (Cockerell, *Lep. Middx.*, 1891).

KENT. Found at West Wickham in 1856 (*Entomologists' Weekly Intelligencer* i. 116).

Nymphalis polychloros Linn. The Large Tortoiseshell. (p. 63).

INNER LONDON. Seen in Cleveland Square on May 2, 1917 (G. C. Turner, *Entom.*, 1917, 50: 142).

KENT. Larvae formerly common at Beckenham and Kidbrooke (West, *Ent., Rec.*, 1906).

SURREY. One at Kingston on May 16, 1918 (Ing, *Entom.*, 1918, 51: 161); a male seen at Ewell on July 5, 1946 (Buckstone, *Entom.*, 1946, 79: 90); one at Bookham Common on March 27, 1948 (Wheeler, *L.N.*, 1954); one at Burford Bridge Hotel in the spring of 1948 and another taken in a chalk pit above Betchworth on April 9, 1949 (G. Cole).

Nymphalis antiopa Linn. The Camberwell Beauty. (p. 64).

INNER LONDON. One seen sunning itself near Finsbury Square on September 3, 1954 (Miss Morris, *Entom.*, 1954, 87: 220).

Polygonia c-album Linn. The Comma. (p. 66).

INNER LONDON. One in Threadneedle Street in August, 1933 and in Broad Street in the City on July 5, 1939 (Keywood); another seen in Moorgate on March 29, 1946 (E. E. Johnson, *Entom.*, 1946, 79: 165).

HERTS. In Whippendell Woods (Saunders).

ESSEX. One at Walthamstow on October 5, 1933 (Rev. S. Haines, *Entom.*, 1934, 67: 9).

KENT. In Swanscombe Wood in 1868 (West, *Ent. Rec.*, 1906).

Vanessa cardui Linn. The Painted Lady. (p. 62).

SURREY. One seen at Chessington on March 12, 1952 (Stallwood *Entom.*, 1952, 85: 95).

Apatura iris Linn. The Purple Emperor. (p. 66). Add (M.21).

MIDDLESEX. Caen Wood, Hampstead, reported there in the 1850's by J. F. Stephens (Cockerell, *Lep. Middx.*, 1891).

ESSEX. One observed flying over oaks in Epping Forest about 1890 (K. Self).

SURREY. Seen near Selsdon in 1874 (Croydon Natural History Society Report); a pair found *in cop.* at Bookham Common on July 7, 1952 (Craske).

Limenitis camilla Linn. The White Admiral. (p. 67). Add (I.L.), B.24.

INNER LONDON. A specimen observed in Trafalgar Square in 1935 (L. Tremayne); one seen in Finsbury Square in the City on July 19, 1940 and another a few days later in Great Portland Street (Russell James, *Entom.*, 1940, 73: 213).

MIDDLESEX. One seen on Hampstead Heath on July 6, 1944 (Washburn, *Entom.*, 1944, 77: 157); it occurred at Mill Hill (Cockerell, *Lep. Middx.*, 1891); seen at Harlesden (J. Richardson, *Entom.*, 1952, 85: 29); common in Copse Wood, Ruislip (Minnion).

HERTS. In Whippendell Woods where it is common (Saunders).

KENT. One in Abbey Wood in June, 1949 (Showler).

SURREY. An example observed at Putney on July 14, 1943 (Yglesias, *Entom.*, 1943, 76: 187); also at Coulsdon (Granville White, *Entom.*, 1935, 68: 217); one on Wimbledon Common on July 22, 1917 (L. Wakely, *Ent. Rec.*, 1918, 30: 154).

BUCKS. Numerous at Chalfont St. Peter in 1955 (Ansorge).

LYCAENIDAE

Cupido minimus Fuessl. The Small Blue. (p. 68). Add M.21.

MIDDLESEX. Two records for the Ruislip area (Minnion).

SURREY. Seen at Caterham in 1876 (West, *Ent. Rec.*, 1906).

Plebeius argus Linn. The Silver-studded Blue. (p. 68).

ESSEX. A colony in a chalk pit near Grays (E. Williams).

KENT. Formerly at Shooter's Hill (West, *Ent. Rec.*, 1906).

SURREY. Taken near Warlingham in 1929 (P. Bell); common most years on Fairmile Common, Cobham (C. de W.).

Aricia agestis Schiff. The Brown Argus. (p. 69).

SURREY. One seen on Wimbledon Common on July 29, 1950 (A. W. Jones, *London Naturalist*, 1954, 34: 108).

Lysandra coridon Pod. The Chalk-hill Blue. (p. 70). Add (M.21).

MIDDLESEX. A specimen at Hounslow on August 1, 1887 (Rendall, *Entom.*, 1887, 20: 229); once near Ruislip (Minnion).

ESSEX. An example observed in Epping Forest in 1885 (Dannatt, *Entom.*, 1885, 18: 242).

SURREY. Another seen on Barnes Common (Dannatt, *Entom.*, 1885, 18: 316).

Lysandra bellargus Rott. The Adonis Blue (p. 70).

KENT. Formerly near Darenth (West, *Ent. Rec.*, 1906).

SURREY. Numerous at Caterham in 1870 (West, *Ent. Rec.*, 1906).

Lampides boeticus Linn. The Long-tailed Blue. (p. 70).

KENT. One taken at Dartford on September 7, 1893 (E. Sabine, *Entom.*, 1893, 26: 301).

SURREY. A perfect male example caught on Wimbledon Common by R. M. Craske on October 3, 1950 (*Entom.*, 1951, 84: 47).

Celastrina argiolus Linn. The Holly Blue. (p. 71).

INNER LONDON. A specimen in Queen Victoria Street in the City on May 4, 1917 (A. Dunster, *Entom.*, 1917, 50: 142); also seen in Holborn (H. J. Turner, *Ent. Rec.*, 1915, 27: 297).

SURREY. Plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

Callophrys rubi Linn. The Green Hairstreak. (p. 72).

MIDDLESEX. One near Hounslow in 1957 (Pierce).

SURREY. A few on Bookham Common (Wheeler, *L.N.*, 1954).

Thecla quercus Linn. The Purple Hairstreak. (p. 73). Add B.24.

MIDDLESEX. Common in the Ruislip area (Minnion).

SURREY. Numerous in 1957 at Poundhill Wood near Bletchingley (Hancock).

BUCKS. Common at Chalfont St. Peter (Ansorge).

Strymonidia w-album Knoch. The White-letter Hairstreak. (p. 73). Add B.24.

HERTS. Common in Whippendell Woods (Saunders).

SURREY. One seen at Bookham Common in 1952 and another in 1953 (van Emden).

BUCKS. A few near Chalfont St. Peter (Ansorge).

DANAIDAE

Danaus plexippus Linn. The Monarch. (p. 73). Add (K.16), (S.17).

KENT. One seen at West Wickham on August 22, 1950 (G. Owen, *Ent. Gazette*, 1951, 2: 75).

SURREY. A large specimen observed at Norbury on September 25, 1957, by Mrs. J. Waller (*Entom.*, 1957, 90: 351).

PAPILIONIDAE

Papilio machaon Linn. The Swallow-tail (p. 73). Add (S.17).

MIDDLESEX. Once at Whitton (Cockerell, *Lep. Middx.*, 1891); one taken at Enfield on August 17, 1911 (Edelsten, *Entom.*, 1911, 44: 365);

SURREY. One seen at Oxted (Sheldon, *Entom.*, 1934, 67: 205); another observed in Richmond Park on June 29, 1935 (*Entom.*, 1935, 68: 211).

Parnassius apollo Linn. The Apollo. (I.L.).

This magnificent butterfly is indeed a surprising addition to the London Area list, since it is mainly an inhabitant of the alpine regions of Europe, extending to Scandinavia. However, there are at least 20 records, most of them authentic, for the British Isles in the last 100 years and even rumours of it breeding at one time in the Highlands. This newcomer is included here on the strength of a battered specimen taken in Tavistock Square in INNER LONDON on September 26, 1957, by D. Ransom (*Entom.*, 1957, 90: 297).

PIERIDAE

Leptidea sinapis Linn. The Wood White. (p. 75).

SURREY. Taken at Warlingham in 1900 and a dozen specimens obtained there from 1926-29 (P. Bell).

Euchloë cardamines Linn. The Orange-tip. (p. 75).

INNER LONDON. A male seen in South Kensington on April 18, 1944 (N. D. Riley, *Entom.*, 1944, 77: 96).

SURREY. Plentiful on Bookham Common in most years (Wheeler, *L.N.*, 1954).

Aporia crataegi Linn. The Black-veined White. (p. 76). Add (M.21).

MIDDLESEX. Formerly near Isleworth by E. Meyers (Cockerell, *Lep., Middx.*, 1891).

Pontia daplidice Linn. The Bath White. (p. 76).

HERTS. One taken at St. Albans in the summer of 1921 (Suppt. to Foster, *Lep. Herts.*, 1937).

Colias croceus Fourcr. The Clouded Yellow. (p. 77).

SURREY. Bookham Common, seen occasionally, a few in 1947 (Wheeler, *L.N.*, 1954); one *f. helice* taken at Walton on October 10, 1947 (Messenger).

KENT. Abundant in 1877 round Croydon, Greenwich and Dartford (West, *Ent. Rec.*, 1906).

Colias hyale Linn. The Pale Clouded Yellow. (p. 77).

KENT. Abundant in meadows near Lee in July 1868 (West, *Ent. Rec.*, 1906).

SURREY. A male seen on July 9, 1916 at Bookham (L. Tatchell, *Ent. Rec.*, 1956, 68: 271); a female caught at Walton on October 4, 1947 and a male taken there on August 27, 1949 (Messenger).

RIODINIDAE

Hamearis lucina Linn. The Duke of Burgundy. (p. 78).

SURREY. Bookham Common, a few observed in the southern area (Wheeler, *L.N.*, 1954).

HESPERIDAE

Erynnis tages Linn. The Dingy Skipper. (p. 79).

SURREY. Numerous on Bookham Common (Wheeler, *L.N.*, 1954).

Pyrgus malvae Linn. The Grizzled Skipper. (p. 79).

SURREY. Plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

MOTHS

Species originally described in the *London Naturalist* for 1953 (No. 33).

SPHINGIDAE

Mimas tiliae Linn. The Lime Hawk. (p. 8).

BUCKS. Fairly common most years at Chalfont St. Peter (Ansorge).

Smerinthus ocellatus Linn. The Eyed Hawk. (p. 9).

BUCKS. Common and often abundant at Chalfont St. Peter (Ansorge).

Acherontia atropos Linn. The Death's Head Hawk. (p. 9).

HERTS. One taken at light at Watford in September, 1956 (B. Allen, *Entom.*, 1956, 89: 301); one at Arkley on September 10, 1956 (Howarth).

MIDDLESEX. One taken by Mr. N. Lowe at Wood Green on September 30, 1956 (C. Hammond, *Entom.*, 1956, 89: 69).

ESSEX. A specimen obtained at Loughton on September 24, 1956, by P. Willingale.

SURREY. Larvae common round Surbiton in 1948 (van Emden); a male obtained at m.v. trap near Weybridge on September 11, 1956 (Messenger).

N.B. The largest immigration of this moth this century took place in September, 1956, nearly 400 imagines being recorded.

Herse convolvuli Linn. The Convolvulus Hawk. (p. 10).

MIDDLESEX. Several taken at Enfield early this century (Edelsten); a female to m.v. light on September 23, 1955 at Mill Hill (Goater).

HERTS. Arkley, one on August 30, 1952 and another on October 12, 1953 (Howarth).

KENT. One at Plumstead in 1952 (Showler); one at Westerham on September 14, 1953 and another on September 18, 1958 (C. Edwards).

SURREY. One at m.v. trap at Weybridge on August 29, 1952 (Messenger).

Sphinx ligustri Linn. The Privet Hawk. (p. 10). Add B. 24.

MIDDLESEX. Common in the Ruislip area (Minnion).

BUCKS. Plentiful at Chalfont St. Peter (Ansorge).

Hyloicus pinastri Linn. The Pine Hawk. (p. 11). Add B.24.

MIDDLESEX. Two records for the Ruislip district (Minnion).

SURREY. One at Kingston Vale (F. Sutton, *Ent. Gazette*. 1953, 4: 296); two at light at Oxshott in 1957 (de Mornay); a few every year at Weybridge (Messenger).

BUCKS. Two at light in 1957 at Chalfont St. Peter (Ansorge).

Celerio galii Rott. The Bedstraw Hawk. (p. 11). Add (S.17).

MIDDLESEX. One reported from Stamford Hill (*Entom.*, 1870-71, 5: 169).

KENT. One taken at Plumstead in 1870 (*Entom.*, 1870-71, 5: 265); two at m.v. light at Otford on July 28, 1955 (W. Manley, *Entom.*, 1955, 88: 210); one at light at Pinden near Dartford on August 28, 1955 (Hare).

SURREY. One at Tooting on August 12, 1870 (H. Leslie, *Entom.*, 1870-71, 5: 82); two at Weybridge in August 1875 (*Entom.*, 1875, 8: 271); three near Warlingham in 1929 (P. Bell); one at light near Box Hill in July, 1955 (J. Howard).

N.B. There was a large immigration of this insect in 1955, over 50 imagines being reported from the British Isles.

Celerio livornica Esp. The Striped Hawk. (p. 12). Add (M.21).

MIDDLESEX. A specimen recorded from Harefield (Cockerell, *Lep. Middx.*, 1891).

ESSEX. One taken at Waltham Abbey on June 17, 1870 (R. Davies, *Entom.*, 1870-71, 5: 114).

KENT. A specimen taken at Sidcup on May 23, 1920 (R. Sutton, *Entom.*, 1920, 53: 190).

SURREY. Reported from Cheam (J. Brown, *Entom.*, 1868, 4: 365); one taken at Weybridge on August 1, 1868 (Barton, *Entom.*, 1868, 4: 149); one at Box Hill in June 1883 (Paskell, *Entom.*, 1883, 16: 234); one at Kenley on October 15, 1898 (Rev. Snell, *Entom.*, 1898, 31: 292); a specimen taken at Limpsfield on August 19, 1899 (Frohawk, *Entom.*, 1899, 32: 235); one at Epsom on June 19, 1906 (H. Penn, *Entom.*, 1906, 39: 262); at Merton on May 15, 1922 (Coulson, *Entom.*, 1922, 55: 163); one at Purley on August 3, 1911 (E. C. Joy, *Entom.*, 1911, 44: 365); also a specimen at rest near there in 1949 (Norris, *Entom.*, 1949, 82: 235); one at Caterham on July 8, 1931 (P. Bell).

Hippotion celerio Linn. The Silver-Striped Hawk. (p. 12).

MIDDLESEX. One reported from Harefield (Cockerell, *Lep. Middx.*, 1891).

HERTS. A magnificent specimen, a male taken at m.v. trap at Arkley on October 13, 1958 (Howarth, *Entom.*, 1959, 92: 21).

SURREY. An example taken at Ewell in August, 1898 (Frohawk, *Entom.*, 1899, 32: 39).

Daphnis nerii Linn. The Oleander Hawk. (p. 12).

KENT. A specimen taken at Swanley Station on July 20, 1958 (K. Joseph, *Entom.*, 1958, 91, 191).

Deilephila porcellus Linn. The Small Elephant Hawk. (p. 13). Add B.24.

BUCKS. A few at Chalfont St. Peter (Ansorge).

Deilephila elpenor Linn. The Elephant Hawk. (p. 13).

SURREY. Plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Common at Chalfont St. Peter (Ansorge).

Macroglossa stellatarum Linn. The Humming-Bird Hawk. (p. 14).

MIDDLESEX. Common at Ruislip in 1955 (Minnion).

SURREY. A few at Bookham in 1947 (Wheeler, *L.N.*, 1954).

Hemaris fuciformis Linn. The Broad-bordered Bee Hawk. (p. 14). Add M.21, H.20, B.24.

MIDDLESEX. Observed near Ruislip (Minnion).

HERTS. Larvae common at Broxbourne in 1921 (Edelsten).

SURREY. Larvae found at Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Fairly common at Chalfont St. Peter in 1957 (Ansorge).

Hemaris tityus Linn. The Narrow-bordered Bee Hawk. (p. 14). Add M.21, B.24.

MIDDLESEX. Taken near Ruislip in 1955 (Minnion).

BUCKS. Numerous on the railway bank near Chalfont St. Peter in 1957 (Ansorge).

N.B. The record of this species at Broxbourne in the original text is erroneous and should refer to *H. fuciformis*.

NOTODONTIDAE

Cerura bicuspis Borkh. The Alder Kitten. (p. 15). Add K.16.

KENT. A male taken at m.v. light at Otford on June 22, 1955 (W. Manley).

Cerura bifida Brahm. The Poplar Kitten. (p. 15). Add B.24.

MIDDLESEX. Ruislip, a few (Minnion); one at Mill Hill in 1957 and another in 1958 (Goater).

ESSEX. Epping Forest (Edelsten).

KENT. Orpington, 1954 (Siggs); St. Mary Cray, 1957 (Châtelain); formerly at Blackheath (West, *Ent. Rec.*, 1906).

SURREY. Larvae at Bookham Common (Wheeler, *L.N.*, 1954); Wimbledon (Dacie); a female taken at light at Oxshott in 1957 (de Mornay).

BUCKS. One at Chalfont St. Peter in 1957 (Ansorge).

Cerura furcula Linn. The Sallow Kitten. (p. 15).

MIDDLESEX. Three males at light at Mill Hill in 1957 (Goater); fairly common near Ruislip (Minnion).

KENT. At Lee, Lewisham and Blackheath (West, *Ent. Rec.*, 1906).

SURREY. Larvae on Bookham Common (Wheeler, *L.N.*, 1954).

Stauropus fagi Linn. The Lobster. (p. 16).

MIDDLESEX. Numerous in the Ruislip area (Minnion).

HERTS. Totteridge, one in 1958 (Lorimer).

KENT. Orpington, 1954 (Siggs); Pett's Wood, 1954 (Châtelain).

SURREY. Two on Bookham Common in 1951 (Wheeler, *L.N.*, 1954); one in 1957 at Oxshott (de Mornay).

BUCKS. Occasionally at Chalfont St. Giles (Ansorge).

Drymonia ruficornis Hufn. The Lunar Marbled Brown. (p. 16).

MIDDLESEX. Several at Mill Hill, 1956-58 (Goater); and near Ruislip (Minnion).

Drymonia trimacula Esp. The Pale Marbled Brown (p. 17). Add M.21, B.24.

MIDDLESEX. Fairly common near Ruislip (Minnion).

SURREY. A few at Oxshott (de Mornay); plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Numerous at Chalfont St. Peter in 1957 (Ansorge).

Pheosia tremula Clerck. The Swallow Prominent. (p. 17). Add B.24

MIDDLESEX. Numerous at Mill Hill, 1955-58 (Goater); and near Ruislip (Minnion).

SURREY. Common at Oxshott (de Mornay); also on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Chalfont St. Peter in 1956 (Ansorge).

Pheosia gnoma Fab. The Lesser Swallow Prominent. (p. 17). Add B.24.

MIDDLESEX. A few at Mill Hill, 1955-58 (Goater); common near Ruislip (Minnion).

SURREY. Plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. At Chalfont St. Peter, 1955 (Ansorge).

Notodonta dromedarius Linn. The Iron Prominent. (p. 18).

MIDDLESEX. A few at light 1955-58 at Mill Hill (Goater); common in the Ruislip area (Minnion).

SURREY. Common at Oxshott in 1957 (de Mornay); also near Wimbledon in 1957 (Dacie); plentiful at Bookham Common most years (Wheeler, *L.N.*, 1954).

BUCKS. Plentiful at Chalfont St. Peter (Ansorge).

Notodonta anceps Goeze. The Large Prominent. (p. 18).

MIDDLESEX. Fairly common near Ruislip in 1957 (Minnion).

SURREY. In numbers sometimes at light on Bookham Common (Wheeler, *L.N.*, 1954).

Odontosia carmelita Esp. The Scarce Prominent. (p. 19). Add M.21.

MIDDLESEX. First taken at Northwood in 1952 (Minnion).

SURREY. One at Walton-on-Thames on May 6, 1899 (C. N. Hughes, *Entom.*, 1899, 32: 166); several at light at Wisley in May, 1956 (C. de W.).

Lophopteryx cucullina Schiff. The Maple Prominent. (p. 19). Add S.17, B.24.

KENT. Orpington in 1956 (Siggs); at St. Mary Cray in 1957 (Châtelain); Otford, five at light in 1955 (W. Manley).

SURREY. A few bred from Caterham (P. Bell).

BUCKS. Two in 1957 at Chalfont St. Peter (Ansorge).

Ptilophora plumigera Linn. The Plumed Prominent (p. 19). Add S.17.

KENT. Formerly at Blackheath (West, *Ent. Rec.*, 1906); taken originally in Darenth Wood by Stephens in 1828 (South i. 79).

SURREY. Near Reigate (Wightman, *Entom.*, 1905, 38: 314).

Pterostoma palpina Linn. The Pale Prominent. (p. 19).

MIDDLESEX. Fairly common at Mill Hill, 1955-58 (Goater); two larvae at Hounslow in 1957 (Pierce).

SURREY. A few at Oxshott in 1957 (de Mornay); numerous on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Common at Chalfont St. Peter (Ansorge).

Clostera curtula Linn. The Chocolate-tip. (p. 20). Add B.24.

MIDDLESEX. One male at light on May 23, 1955 at Mill Hill (Goater); numerous where aspen grows in the Ruislip district (Minnion).

KENT. Pett's Wood, St. Mary's Cray and Orpington, 1947-57 (Siggs); Otford, a few in 1955 (W. Manley).

SURREY. Dulwich, a few (Dillon); scarce on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. A few at Chalfont St. Peter (Ansorge).

Clostera pigra Hufn. The Small Chocolate-tip. (p. 20).

KENT. Taken at Pett's Wood in 1947 (A. Swain).

SURREY. Larvae at Esher and Wisley (R. South, *Entom.*, 1905, 38: 27); plentiful at Bookham Common (Wheeler, *L.N.*, 1954); one at Weybridge at light on May 10, 1957 (Messenger).

THYATIRIDAE

Tethea or Fab. The Poplar Lutestring (p. 21).

MIDDLESEX. Once near Ruislip (Minnion).

SURREY. Larvae common on aspen on Bookham Common (Wheeler, *L.N.*, 1954).

Tethea ocularis Linn. The Figure of Eighty. (p. 22). Add B.24.

INNER LONDON. One at Belsize Park on July 5, 1927 (O. W. Richards).

MIDDLESEX. Fairly common at Mill Hill (Goater) and Ruislip (Minnion).

ESSEX. Epping Forest (*Entom.*, 1905, 38: 215).

SURREY. Dulwich, common (Dillon); Wimbledon in 1957 (Dacie); Oxshott, a few in 1957 (de Mornay); larvae on white poplar in 1954 at Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Several at light at Chalfont St. Peter (Ansorge).

Tethea duplaris Linn. The Lesser Satin Lutestring. (p. 22).

MIDDLESEX. Fairly common near Ruislip (Minnion).

KENT. Orpington and Pett's Wood in 1954 (Siggs).

SURREY. Taken at Clapham (Stonell, *Entom.*, 1905, 38: 67); Oxshott in 1957 (de Mornay); Wimbledon Common in 1910 (Cardew); Bookham Common (Wheeler, *L.N.*, 1954).

Tethea fluctuosa Hübn. The Satin Lutestring. (p. 22).

SURREY. A specimen taken in Banstead Wood on June 28, 1903 (Meldola: Hope Dept. Collection, Oxford).

Asphalia diluta Schiff. The Lesser Lutestring. (p. 22).

MIDDLESEX. Common in the Ruislip area (Minnion).

KENT. Orpington, 1954 (Siggs).

SURREY. Plentiful at Bookham Common (Wheeler, *L.N.*, 1954).

Polyploca ridens Fab. The Frosted Green. (p. 23).

SURREY. Larvae numerous on Bookham Common (Wheeler, *L.N.*, 1954).

LYMANTRIIDAE

Dasychira fascelina Linn. The Dark Tussock. (p. 24).

SURREY. Four specimens taken at light near Weybridge, 1953-54 (Messenger).

N.B. The reference in the original text to larvae found at Hoddesdon should be deleted, as they subsequently proved to be those of another species.

Leucoma salicis Linn. The White Satin. (p. 25). Add B.24.

MIDDLESEX. A few from 1955-57 at light at Mill Hill (Goater); fairly numerous near Ruislip (Minnion).

KENT. St. Mary Cray in 1954 (Châtelain).

SURREY. One in 1957 at Oxshott (de Mornay); one at Weybridge on July 26, 1955 (Messenger).

BUCKS. Appeared in 1957 at Chalfont St. Peter (Ansorge).

Lymantria monacha Linn. The Black Arches. (p. 26).

MIDDLESEX. Scarce in the Ruislip area (Minnion).

KENT. Pett's Wood in 1949 (Siggs).

SURREY. Numerous on Bookham Common (Wheeler, *L.N.*, 1954).

LASIOCAMPIDAE

Trichiura crataegi Linn. The Pale Oak Eggar. (p. 27). Add E2.18.

ESSEX. Bred from larvae found at Loughton (West, *Ent. Rec.*, 1906).

KENT. A male found at rest on wall at Blackheath (West, *Ent. Rec.*, 1906).

Poecilocampa populi Linn. The December Moth. (p. 27). Add B.24.

MIDDLESEX. Common near Ruislip (Minnion).

SURREY. Abundant on Bookham Common (Wheeler, *L.N.*, 1954); and near Oxshott in 1957 (de Mornay).

BUCKS. Chalfont St. Peter in 1956 (Ansorge).

Eriogaster lanestris Linn. The Small Eggar. (p. 27).

MIDDLESEX. Common near Hampstead Heath (T. Barratt, 1912).

KENT. Formerly at Kidbrooke and Dartford (West, *Ent. Rec.*, 1906).

SURREY. Bred from Caterham in 1932 (P. Bell).

Lasiocampa quercus Linn. The Oak Eggar. (p. 28).

KENT. Larvae from Lee and Kidbrooke (West, *Ent. Rec.*, 1906); Chelsfield in 1949 and Green Street Green in 1951 (Siggs).

Macrothylacia rubi Linn. The Fox Moth. (p. 28). Add B.24.

SURREY. Plentiful at Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. A female at light at Chalfont St. Peter in 1957 (Ansorge).

Gastropacha quercifolia Linn. The Lappet. (p. 28).

MIDDLESEX. A few most years near Ruislip (Minnion).

KENT. Orpington in 1954 (Siggs); St. Mary's Cray, 1957 (Châtelain).

SURREY. Larvae plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

SATURNIIDAE

Saturnia pavonia Linn. The Emperor. (p. 29).

SURREY. Abundant on Bookham Common most years (Wheeler, *L.N.*, 1954).

DREPANIDAE

Drepana binaria Hufn. The Oak Hook-tip. (p. 30). Add B.24.

MIDDLESEX. A few most years at Mill Hill (Goater); and near Ruislip (Minnion).

SURREY. Common on Bookham Common (Wheeler, *L.N.*, 1954); Wimbledon in 1957 (Dacie).

BUCKS. Chalfont St. Peter (Ansorge)

Drepana cultraria Fab. The Beech Hook-tip. (p. 30). Add K. 16, B.24.

MIDDLESEX. Twice near Ruislip (Minnion).

KENT. Orpington in 1954 and 1956 (Siggs).

SURREY. Oxshott in 1957 (de Mornay).

BUCKS. Numerous at Chalfont St. Peter (Ansorge).

Drepana falcataria Linn. The Pebble Hook-tip. (p. 30).

MIDDLESEX. Common near Ruislip (Minnion).

SURREY. Oxshott in 1957 (de Mornay); Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Chalfont St. Peter (Ansorge).

Drepana lacertinaria Linn. The Scalloped Hook-tip. (p. 31).

MIDDLESEX. Plentiful near Ruislip (Minnion).

BUCKS. Chalfont St. Peter in 1957 (Ansorge).

NOLIDAE

Nola albula Hübn. The Kent Black Arches. (H.20).

This small member of our lepidoptera usually appears in early July and has the habit of making a short dusk flight when a number of these little moths flying together give the appearance of so many snow flakes. It is very local, though in recent years it has been discovered in many spots along the South Coast from Kent to Devon, also on the coast of Suffolk and in South Wales at Tenby. It is seldom met with far inland and therefore a surprising capture was a specimen taken at Arkley in HERTS on August 5, 1954 (Howarth, *Ent. Gazette*, 1954, 5: 232).

Celama confusalis H.-S. The Least Black Arches. (p. 32). Add I.L.

INNER LONDON. One seen at rest in Hyde Park in April, 1923 (Kettlewell, *Ent. Rec.*, 1924, 36: 27).

ESSEX. Hainault Forest in May, 1916 (E. Waters: Hope Dept. Collection, Oxford); dark specimens from Epping Forest in 1906 (Meldola: id.).

BUCKS. Occasionally at Chalfont St. Peter (Ansorge).

HYLOPHILIDAE

Earias clorana Linn. The Cream-bordered Pea. (p. 32).

MIDDLESEX. Feltham, a few each year (Classey); several at Mill Hill, 1955-56 (Goater); a few near Ruislip (Minnion).

SURREY. Weybridge, one on July 27, 1955 and another on July 6, 1958 (Messenger).

Bena prasinana Linn. The Green Silver-lines. (p. 33).

MIDDLESEX. Common at Mill Hill (Goater); and near Ruislip (Minnion); a few at Feltham (Classey).

SURREY. Wimbledon, 1957 (Dacie); Oxshott, 1957 (de Mornay); Bookham Common, plentiful (Wheeler, *L.N.*, 1954).

BUCKS. Common at Chalfont St. Peter (Ansorge).

Pseudoips bicolorana Fuessl. The Scarce Silver-lines. (p. 33).

MIDDLESEX. A few most years at Mill Hill (Goater); several at Feltham most seasons (Classey).

HERTS. Five at Oxhey in 1938 (Fletcher).

KENT. Westerham, numerous (Siggs).

SURREY. Oxshott in 1957 (de Mornay); Wimbledon, 1957 (Dacie); Bookham Common, larvae plentiful (Wheeler, *L.N.*, 1954).

BUCKS. A few at Chalfont St. Peter in 1957 (Ansorge).

Sarrothripus revayana Scop. The Large Marbled Tortrix. (p. 33).

MIDDLESEX. Rare in the Ruislip area (Minnion).

SURREY. A few on Bookham Common (Wheeler, *L.N.*, 1954).

ARCTIIDAE

Cynia mendica Clerck. The Muslin. (p. 34). Add B.24.

MIDDLESEX. North Wembley (Fletcher); Mill Hill, three in 1956 (Goater) and occasionally near Ruislip (Minnion).

KENT. Chelsfield and Orpington (A. Swain).

SURREY. Once on Bookham Common in 1950 (Wheeler, *L.N.*, 1954).

BUCKS. Chalfont St. Peter in 1956 (Ansorge).

Diacrisia sannio Linn. The Clouded Buff. (p. 35). Add E2.18.

ESSEX. Taken in Epping Forest in June, 1891 (A. Bayne, *Ent. Rec.*, 1892).

SURREY. A male taken on Bookham Common on June 17, 1934 (Wheeler, *L.N.*, 1954).

Phragmatobia fuliginosa Linn. The Ruby Tiger. (p. 35).

MIDDLESEX. Common in most years at Mill Hill (Goater) and near Ruislip (Minnion).

SURREY. Plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Chalfont St. Peter in 1956 (Ansorge).

Parasemia plantaginis Linn. (p. 35). Add M.21.

MIDDLESEX. Numerous at Ken Wood (T. Barratt, 1912).

Arctia villica Linn. The Cream-spot Tiger. (p. 36).

MIDDLESEX. Occasionally at Feltham (Classey and near Ruislip (Minnion).

KENT. St. Mary's Cray in 1954 (Châtelain).

SURREY. Five at Weybridge, 1954-58 (Messenger); taken at Streatham in 1922 (*Ent. Rec.*, 1935, 47: 116).

Callimorpha dominula Linn. (p. 36). Add M.21.

MIDDLESEX. Often taken at Hampstead (T. Barratt, 1912).

Callimorpha jacobaeae Linn. The Cinnabar. (p. 37).

BUCKS. Common near Chalfont St. Peter (Ansorge).

Nudaria mundana Linn. The Muslin Footman. (p. 37).

KENT. Formerly common on fences at Blackheath (West, *Ent. Rec.*, 1906).

Comacla senex Hübn. The Round-winged Muslin. (p. 37).

MIDDLESEX. Occasionally in the Ruislip area (Minnion).

Miltochrista miniata Forst. The Rosy Footman. (p. 38).

MIDDLESEX. Common most years near Ruislip (Minnion).

KENT. Darenth Wood and Shooter's Hill (West, *Ent. Rec.*, 1906).

SURREY. Numerous on Bookham Common (Wheeler, *L.N.*, 1954).

BUCKS. Chalfont St. Peter (Ansorge)

Cybosia mesomella Linn. The Four-dotted Footman. (p. 38).

MIDDLESEX. Taken near Ruislip in 1956 (Minnion).

SURREY. One at Weybridge on July 23, 1954 and another there on July 27, 1957 (Messenger).

BUCKS. Fairly common near Chalfont St. Peter (Ansorge).

Lithosia quadra Linn. The Four-spotted Footman. (p. 38).

MIDDLESEX. Taken near Ruislip in 1956 (Minnion).

SURREY. A specimen near Warlingham in July 1929 (P. Bell); a male taken at m.v. light at Weybridge on July 21, 1957 (Messenger).

Eilema deplana Esp. The Buff Footman. (p. 39).

SURREY. One at Weybridge on August 7, 1956 (Messenger).

Eilema griseola Hübn. The Dingy Footman. (p. 39).

MIDDLESEX. Ruislip in 1956 (Minnion); A few specimens every year at Feltham (Classey).

HERTS. Totteridge, two in August 1958 (Lorimer).

SURREY. Weybridge, a few annually (Messenger).

Eilema lurideola Zink. The Common Footman. (p. 39).

MIDDLESEX. Enfield (Edelsten), and near Ruislip (Minnion).

KENT. Orpington in 1955 (Siggs).

SURREY. Abundant on Bookham Common (Wheeler, *L.N.*, 1954).

Eilema complana Linn. The Scarce Footman. (p. 40).

MIDDLESEX. A few in the Ruislip area (Minnion).

SURREY. Wimbledon in 1957 (Dacie).

Eilema sororcula Hufn. The Orange Footman. (p. 40).

SURREY. A few on Bookham Common (Wheeler *L.N.*, 1954); occasionally at Weybridge (Messenger).

ZYGAENIDAE

Zygaena filipendulae Linn. The Six-spot Burnet. (p. 40). Add B.24.

MIDDLESEX. Taken at Kenton in 1935 (Fletcher).

BUCKS. Common at Chalfont St. Peter (Ansorge).

Zygaena trifolii Esp. The Five-spot Burnet. (p. 41). Add (E2.18), B.24.
 ESSEX. Loughton in 1865 (West, *Ent.*, *Rec.*, 1906).
 KENT. Pett's Wood in 1950 (Siggs).

Zygaena lonicerae Esp. The Narrow-bordered Five-spot Burnet. (p. 41).
 Add M.21.

MIDDLESEX. Abundant near Stanmore, July, 1938 (Fletcher) and near Ruislip (Minnion).

KENT. Eynsford (Châtelain).

COSSIDAE

Zeuzera pyrina Linn. The Leopard Moth. (p. 42).

MIDDLESEX. Males fairly common at light at Mill Hill (Goater).

KENT. St. Mary's Cray, 1957 (Châtelain).

SURREY. Numerous at Wimbledon (Dacie); twenty-five males at light on July 5, 1957 at Oxshott (de Mornay).

BUCKS. Common at Chalfont St. Peter (Ansorge).

Cossus cossus Linn. The Goat Moth. (p. 43).

MIDDLESEX. Occasionally near Ruislip (Minnion).

KENT. St. Mary's Cray in 1957 (Châtelain).

LIMACODIDAE

Apoda avellana Linn. The Festoon. (p. 43). Add M.21.

MIDDLESEX. Scarce in the Ruislip area (Minnion).

KENT. Formerly at Shooter's Hill and Swanscombe (West, *Ent. Rec.*, 1906). Dartford in 1890 (Sellon: Hope Dept. Collection, Oxford).

SESIIDAE

Aegeria formicaeformis Esp. The Red-tipped Clearwing. (p. 44). Add H.20.

MIDDLESEX. Once near Ruislip (Minnion).

HERTS. Broxbourne (Edelsten).

KENT. Plumstead, on osiers in 1879 (West, *Ent. Rec.*, 1906).

SURREY. Streatham in 1902 (*Ent. Rec.*, 1935, 47: 116).

Aegeria culiciformis Linn. The Large Red-belted Clearwing. (p. 44).

SURREY. Near Croydon (Antram, *Ent. Rec.*, 1900, 12: 247).

Aegeria myopaeformis Borkh. The Small Red-belted Clearwing. (p. 44).

INNER LONDON. Highbury (*Entom.*, 1902, 35: 286); taken in Regent's Park on June 26, 1935 (Classey, *Entom.*, 1935, 68: 218).

MIDDLESEX. Common at Bedford Park, Chiswick (J. Dollman, *Ent. Rec.*, 1906, 18: 145); abundant at Hammersmith (J. Bird, *Ent. Rec.*, 1906, 18, 204); once near Ruislip (Minnion).

ESSEX. Leyton in 1869 (Meldola, Hope Dept. Collection, Oxford).

KENT. Sydenham in 1891 (Sellon: Hope Dept. Collection, Oxford).

SURREY. Streatham (*Ent. Rec.*, 1935, 47: 116).

Aegeria vespiformis Linn. The Yellow-legged Clearwing. (p. 44).

MIDDLESEX. A few seen in the Ruislip area (Minnion).

KENT. Darenth and Greenwich Park about 1870 (West, *Ent. Rec.*, 1906).

SURREY. Streatham (*Ent. Rec.*, 1935, 47: 116).

Aegeria tipuliformis Clerck. The Currant Clearwing. (p. 45).

MIDDLESEX. Enfield (Edelsten) and once near Ruislip (Minnion).

KENT. Greenwich in the 1860's (West, *Ent. Rec.*, 1906); Sydenham in 1891 (Sellon: Hope Dept. Collection, Oxford); Abbey Wood (Showler).

SURREY. Streatham (*Ent. Rec.*, 1935, 47: 116).

Aegeria flaviventris Staud. The Sallow Clearwing. (p. 45).

SURREY. Stems of sallow infected by this species often found on Bookham Common (Wheeler, *L.N.*, 1954).

Sesia apiformis Clerck. Poplar Hornet Clearwing. (p. 46).

SURREY. Quite plentiful on Bookham Common (Wheeler, *L.N.*, 1954).

Sesia bembiciformis Hübn. The Osier Hornet Clearwing. (p. 46).

MIDDLESEX. Bedford Park, Chiswick (J. Dollman, *Ent. Rec.*, 1906, 18: 145); and once in the Ruislip area (Minnion).

SURREY. Larvae and pupae obtained in one big sallow from 1948-53 on Bookham Common (Wheeler, *L.N.*, 1954).

The Gall Mites (Eriophyidae) of the London Area

By M. NIBLETT, F.R.E.S.

THE following list of Mite Galls has been compiled mainly from my own observations; to these have been added a number recorded at times in the *London Naturalist*; unfortunately with many of the latter no locality was given so they could not be included here. There have also been recorded a number as *Eriophyes* sp., but as this conveys nothing definite these have been left out. The area is that covered by the London Natural History Society, this being contained within a circle having a 20-mile radius from St. Paul's Cathedral. The Vice-County number is inserted before each list of localities, as follows:—K.16, West Kent; S.17, Surrey; E2.18, South Essex; H.20, Hertfordshire; M.21, Middlesex; I.L. Inner London.

The nomenclature used is that of Ross and Hedicke (1927) for the mites, and for the plants that of Dandy (1958).

Epitrimerus trilobus (Nal.): Galls on leaves of *Sambucus nigra*. K.16, Abbey Wood; S.17, Ashted Common, Banstead, Buckland Hills, Bookham Common, Epsom Common, Fetcham Downs, King's Wood, Kingswood, Leatherhead, Mickleham, Selsdon Wood, Walton Heath, Wimbledon Common; E2.18, Epping Forest.

Eriophyes anceps (Nal.): Galls on leaves and flowers of *Veronica chamaedrys*. S.17, Riddlesdown.

E. artemisiae (Can.): Galls on leaves of *Artemisia vulgaris*. S.17, Banstead Downs, Epsom Downs.

E. atrichus (Nal.): Galls on leaves of *Stellaria* spp. S.17, Arbrook Common, Bookham Common, Epsom Common, Wimbledon Common.

E. avellanae (Nal.): Galls in buds of *Corylus avellana*. K.16, West Wickham; S.17, Banstead Wood, Bookham Common, Burgh Heath, Epsom Common, Fetcham Downs, Kingswood, Leatherhead, Limpsfield Chart, Limpsfield Common, Mickleham, Norbury Park, Woodmansterne.

E. campanulae Lindr.: Galls on leaves of *Campanula glomerata*. S.17, Norbury Park.

E. centaureae (Nal.): Galls on leaves of *Centaurea nigra*, *C. scabiosa*. S.17, Addington, Ashted, Banstead, Banstead Downs, Banstead Wood, Chipstead, Coulsdon, Farthing Down, Mickleham Downs, Riddlesdown, Woodmansterne.

E. cladophthirus (Nal.): Galls on stems and shoots of *Solanum dulcamara*. S.17, Leatherhead, Mickleham Downs.

E. convolvens (Nal.): Galls on leaves of *Euonymus europaeus*. K.16, Eynsford; S.17, Addington, Buckland Hills, Epsom Downs, Fetcham Downs, Mickleham Downs, Norbury Park, Selsdon Wood; E2.18, Epping Forest.

E. dispar (Nal.): Galls on leaves of *Populus tremula*. K.16, Ham Street; S.17, Arbrook Common, Bookham Common, Claygate, Epsom Common, Leatherhead, Little Bookham, Oxted, Wimbledon Common; H.20, Bricket Wood.

E. euaspis (Nal.): Galls on flowers and leaves of *Lotus corniculatus*. K.16, Eynsford.

E. galii (Karp.): Galls on leaves of *Galium* spp. S.17, Addington, Banstead Downs, Banstead Wood, Beddington, Bookham Common,

Carshalton, Epsom Downs, Farthing Down, Fetcham Downs, Kingswood, Woldingham; E2.18, Epping Forest.

E. galiobius (Can.): Galls on stems of *Galium* spp. S.17, Banstead Wood, Epsom Downs, Fetcham Downs, Park Downs, Selsdon Wood.

E. geranii (Can.): Galls on leaves of *Geranium dissectum*. S.17, Coulsdon.

E. gibbosus (Nal.): Galls on leaves of *Rubus* spp. S.17, Arbrook Common, Banstead Wood, Bookham Common, Epsom Common, Fetcham Downs, Limpsfield, Limpsfield Chart, Littleheath Wood, Oxshott Heath, Selsdon Wood; E2.18, Epping Forest.

E. goniothorax (Nal.): Galls on leaves of *Crataegus monogyna*. S.17, Addington, Ashted Common, Banstead, Bookham Common, Burgh Heath, Coulsdon, Coulsdon Common, Epsom Common, Farthing Down, Fetcham Downs, Kingswood, Leatherhead Common, Limpsfield Chart, Norbury Park, Selsdon Wood; E2.18, Epping Forest.

E. gymnoproctus (Nal.): Galls on leaves of *Malva moschata*. K.16, Eynsford; S.17, Banstead Wood, Selsdon Wood.

E. hippocastani (Fock): Galls on leaves of *Aesculus hippocastanum*. K.16, Eynsford; S.17, Bookham Common, Mickleham, Norbury Park.

E. ilicis (Can.): Galls on leaves of *Quercus ilex*. S.17, Ashted, Leatherhead, Mickleham.

E. kernerii (Nal.): Galls on flowers and leaves of *Gentianella amarella*. S.17, Fetcham Downs.

E. laevis (Nal.): Galls on leaves of *Alnus glutinosa*. S.17, Arbrook Common, Leatherhead, Norbury Park, Reigate Heath.

E. laevis inangulis (Nal.): Galls on leaves of *Alnus glutinosa*. S.17, Arbrook Common, Beddington Park, Esher Common, Leatherhead, Norbury Park, Oxshott, Reigate Heath, Wimbledon Common.

E. laevis lionotus (Nal.): Galls on leaves of *Betula* spp. S.17, Mugswell, Worms Heath.

E. lioproctus (Nal.): Galls on leaves of *Senecio jacobaea*. K.16, Petts Wood; S.17, Epsom Common.

E. macrochelus (Nal.): Galls on leaves of *Acer campestre*. S.17, Banstead Wood, Bookham Common, Burgh Heath, Fetcham, Fetcham Downs, Coulsdon, Norbury Park.

E. macrorhynchus (Nal.): Galls on leaves of *Acer campestre*. K.16, Eynsford, West Wickham; S.17, Addington, Arbrook Common, Banstead, Banstead Wood, Bookham Common, Buckland Hills, Burgh Heath, Chessington, Chipstead, Colley Hill, Coulsdon, Croham Hurst, Epsom Common, Fetcham Downs, Hackbridge, Kingswood, Kingswood, Leatherhead, Leatherhead Common, Limpsfield Chart, Norbury Park, Park Downs, Selsdon Wood, Wallington, Walton Heath, Woodmansterne; E2.18, Epping Forest.

E. nudus (Nal.): Galls on leaves of *Geum urbanum*. S.17, Banstead Wood.

E. ononidis (Can.): Galls on leaves of *Ononis repens*. S.17, Banstead Downs.

E. origani (Nal.): Galls on flowers, leaves and stems of *Origanum vulgare*. K.16, Eynsford; S.17, Addington, Banstead Wood, Chipstead, Coulsdon, Fetcham Downs, Kingswood, Lacey Green, Mickleham Downs, Norbury Park, Riddlesdown, Selsdon Wood.

E. pilosellae (Nal.): Galls on leaves of *Hieracium pilosella*. S.17, Mickleham Downs.

E. peucedani (Can.): Galls on leaves of *Pimpinella saxifraga*. S.17, Riddlesdown.

E. plicator trifolii (Nal.): Galls on leaves of *Vicia tetrasperma*. S.17, Bookham Common.

E. pseudoplatani Corti.: Galls on leaves of *Acer pseudoplatanus*. Bookham Common, Fetcham Downs, Norbury Park.

E. psilaspis (Nal.): Galls of buds of *Taxus baccata*. S.17, Bookham Common, Riddlesdown, Woodmansterne.

E. pyri crataegi (Can.): Galls on leaves of *Crataegus monogyna*. S.17, Ashted Common, Bookham Common, Burgh Heath, Croham Hurst, Epsom Downs, Fetcham Downs, Kingswood, Limpsfield Chart, Norbury Park, Selsdon Wood.

E. pyri variolatus (Nal.): Galls on leaves of *Sorbus aria*, *S. aucuparia*. S.17, Addington, Banstead Wood, Buckland Hills, Epsom Downs, Limpsfield Chart, Mickleham Downs.

E. ribis (Nal.): Galls of buds of *Ribes nigrum*. S.17, Bookham Common, Wallington.

E. rudis (Can.): Galls on leaves of *Betula* spp. K.16, Abbey Wood; S.17, Addington Hills, Bookham Common, Croham Hurst, Epsom Common, Kingswood, Limpsfield Chart, Limpsfield Common.

E. rudis longisetosus (Nal.): Galls on leaves of *Betula* spp. S.17, Banstead Wood, Bookham Common, Fetcham Downs, Worms Heath.

E. sanguisorbae (Can.): Galls on leaves of *Poterium sanguisorba*. K.16, Eynsford; S.17, Banstead Wood, Coulsdon, Farthing Down.

E. schmardae (Nal.): Galls on flowers of *Campanula glomerata*. S.17, Chipstead, Norbury Park.

E. similis (Nal.): Galls on leaves of *Prunus spinosa*. K.16, Eynsford; S.17, Bookham Common, Burgh Heath, Colley Hill, Epsom Common, Farthing Down, Fetcham Downs, Walton Heath, Worms Heath; E2.18, Epping Forest.

E. squalidus (Nal.): Galls on flowers of *Scabiosa columbaria*. S.17, Park Downs, Riddlesdown.

E. tetanothrix (Nal.): Galls on leaves of *Salix* spp. S.17, Arbrook Common, Bookham Common, Epsom Common, Limpsfield, Norbury Park.

E. tetratrichus (Nal.): Galls on leaves of *Tilia* spp. S.17, Beddington Park, Burgh Heath, Fetcham, Leatherhead.

E. thomasi (Nal.): Galls on flowers and leaves of *Thymus serpyllum*. S.17, Buckland Hills, Coulsdon, Epsom Downs, Fetcham Downs, Lacey Green, Limpsfield Chart, Riddlesdown, Walton Heath, Woldingham.

E. tiliae (Nal.): Galls on Leaves of *Tilia* spp. S.17, Addington Hills, Beddington Park, Burgh Heath, Epsom Downs, Fetcham Downs, Leatherhead, Mickleham Downs.

E. tiliae exilis (Nal.): Galls on leaves of *Tilia* spp. S.17, Beddington Park, Fetcham Downs, Leatherhead, Mickleham Downs.

E. tiliae liosoma (Nal.): Galls on leaves of *Tilia* spp. S.17, Beddington Park, Buckland Hills, Limpsfield Chart, Norbury Park, Park Downs, Walton Heath.

E. triradiatus (Nal.): Galls on flowers and leaves of *Salix* spp. (Witches Brooms). S.17, Barnes Common, Beddington, Carshalton, Earlsfield, Mitcham, Richmond, Riddlesdown, Waddon, Wimbledon Common; E2.18, Epping Forest, Lea Valley, Woodford; H.20, Bricket Wood;

M.21, Brentford, Hayes, Hendon, Turnham Green; I.L., Battersea Park, Hyde Park, Red Lion Square, St. James's Park.

E. tristriatus erineus (Nal.): Galls on leaves of *Juglans regia*. S.17, Banstead Downs, Beddington Park, Fetcham Downs, Leatherhead, Mickleham, Norbury Park.

E. ulmicola (Nal.): Galls on leaves of *Ulmus* spp. S.17, Addington, Ashted Common, Bookham Common, Carshalton, Croham Hurst, Epsom Common, Fetcham Downs, Fetcham, Leatherhead, Kingswood, Mickleham, Norbury Park, Oxshott Heath.

E. viburni (Nal.): Galls on leaves of *Viburnum lantana*. K.16, Eynsford; S.17, Addington, Banstead Wood, Buckland Hills, Colley Hill, Coulsdon, Farthing Down, Fetcham Downs, Leatherhead, Mickleham, Mickleham Downs, Mugswell, Walton Heath, Riddlesdown, Woldingham.

E. violae (Nal.): Galls of *Viola* Spp. S.17, Banstead Wood, Fetcham.

E. vitalbae (Can.): Galls on leaves of *Clematis vitalba*. S.17, Addington, Epsom Downs, Mickleham, Riddlesdown.

E. xylostei (Can.): Galls on leaves of *Lonicera periclymenum*. S.17, Bookham Common.

Monochetus sulcatus (Nal.): Galls on leaves of *Fagus sylvatica*. S.17, Banstead Wood, Croham Hurst, Fetcham Downs, Leatherhead, Limpsfield Chart, Mickleham, Park Downs.

Phyllocoptes anthobius (Nal.): Galls on leaves of *Galium* spp. S.17, Bookham Common, Walton Heath.

P. retiolatus (Nal.): Galls on leaves of *Vicia cracca*. S.17, Riddlesdown.

P. teucrii (Nal.): Galls on leaves of *Teucrium scorodonia*. S.17, Banstead Wood, Buckland Hills.

REFERENCES

- DANDY, J. E., 1958, *List of British Vascular Plants*, London.
ROSS, H., and HEDICKE, H., 1927, *Die Pflanzengallen (Cecidien) Mittel—und Nordeuropas*, Jena.

On the Insect Fauna of an Area of Thames-side

By R. W. J. UFFEN

THE left bank of the Thames between Chiswick Bridge and Barnes Railway Bridge shows several distinct zones of vegetation. Towards Chiswick Bridge there is no man-made embankment and the steep mud banks are capped by a thirty feet wide belt of *Phragmites* and *Vitisalix* which is much eroded. Behind is a strip of waste ground which forms the subject of this note. It is about forty feet wide and is covered with tall perennial weeds, except for a few breaks worn by cars parking facing the river, and a concrete parking area. Where there is an artificial embankment the waste strip is up to ninety feet wide.

Behind this area runs a metalled road, a verge divided by a wire fence, a belt of allotments and, still further from the river, broad playing fields.

This waste strip is cleared irregularly by the local authority, this causing the balance of its fauna and flora to vary from year to year. Clearance is commonly carried out each year during autumn or winter, probably for the benefit of spectators of the University Boat Race, and at some time in the growing season. In autumn 1957, the result was particularly drastic. Mechanized equipment may have been used to create the extraordinary sward of nascent shoots of *Urtica*, *Artemisia*, *Heracleum*

and other plants which existed until growth recommenced in the spring of 1958. The verge, particularly beyond the fence of the allotments, remains uncut and forms a vital reservoir for elements of the fauna which are eradicated when their foodplants or shelter are destroyed. The irregular cutting during the growing season sometimes throws the succession of growth and flowering severely out of the usual order. One year, when cutting took place as the *Heracleum* was throwing up its flowering stems, this plant flowered at a time when it had been replaced by *Angelica* at Bookham, and continued into late autumn. The competing community was of course quite different at this time.

The flora includes the following species which have been dominant over parts of the area at some season in one or more years. Other species have not been looked for but are probably few and comparatively scarce. *Cardaria draba*, *Armoracia rusticana*, *Chenopodium album*, *Heracleum sphondylium*, *Polygonum aviculare* agg., *P. cuspidatum*, *Rumex* sp., *Urtica dioica*, *Ballota nigra*, *Senecio squalidus*, *Artemisia vulgaris*, *Arctium lappa*.

A few species which are common near the area occur within it as casuals. Few of the species listed form a ground layer, and this is usually along the edges of the road or the car tracks across the breadth of the strip. Grasses persist but are almost entirely overgrown. There is one exceptional patch of recent origin, in which the grasses have not yet been named.

Numerous insects are found on the *Artemisia vulgaris*. *Cucullia absinthii* L. is a seed-feeding Agrotid moth, formerly restricted in England to the south-west coast, which has spread through urban London and similar areas in the Midlands since 1939. *Pyrausta nubilalis* L., a stem-boring Pyralid moth, used to be known only as a scarce migrant, but has colonized the Thames valley since its establishment on rubbish dumps in Essex in 1937. This insect is apparently restricted to this foodplant in Britain, apart from records of its attacking hops, although it is a polyphagous pest around the Mediterranean, as also in the U.S.A. where it has been introduced and is known as the European Corn Borer. In north-western Europe and northern U.S.A. it is single-brooded, but is double-brooded in the south of France and southern U.S.A. I have found a larva feeding in a stem of *Polygonum cuspidatum*, but this is exceptional.

Gortyna flavago Schiff. sometimes bores in the stem-bases of this *Artemisia*, but is more obvious when numerous larvae almost completely hollow out plants of *Arctium*. *Coleophora artemisicolella* Bruand, which attaches its seed-head case to the sides of other seed-heads of *Artemisia* before boring into them to eat the contents, presumably overwinters on the ground to persist despite the clearance operations.

It is here that the writer has been able to work out the biology of the Trypetid fly *Paroxyna misella* Loew, which has a seed-eating second brood on *Artemisia*, in addition to the well known, gall-making, first brood. Overwintering flies were almost wiped out by snow after the complete removal of vegetative shelter at the end of 1957. Recolonization from the verge has been successful in 1958. The larvae were but lightly parasitized and the species proved capable of enormous multiplication in its two broods.

The few plants of *Dipsacus*, sometimes reduced to half a dozen, showed how a tenacious insect can exist in remarkably small colonies by providing one of the first British records of the leaf-mining fly *Agromyza dipsaci* Hend.

Other curious elements of the insect fauna whose relationships to the flora have yet to be worked out include *Cheilosia velutina* Loew and *Tenthredo omissa* (Förster).

Cheilosia velutina is the only hoverfly of its genus to occur on this piece of ground, yet it is normally an uncommon species. I have yet to meet with it elsewhere. I first saw the flies on July 29, 1957, when a number were caught, together with an unaccustomed number of *Pipizella varipes* (Mg.). The species was again found in August and September, 1958. *Cheilosia* species have been recorded as attacking rootstocks of diverse plants which are either already rotten or are perhaps caused to rot by the activities of the larvae. A search in October revealed no such material. The larva of this species is still unknown. It is to be hoped that the opportunity of looking for it in this well defined area will recur.

Tenthredo omissa is a sawfly, again the only one of its genus to occur here, previously recorded in Britain only from the fens of East Anglia. It was first noted when a pair was taken in copula on an umbel of *Heracleum* on August 24, 1956, and is now found regularly in August and September flying or settled amongst the herbage or visiting the late *Heracleum* flowers. The caterpillar is unknown in Britain, but is possibly polyphagous, having recently been described from larvae taken on *Plantago* in Germany. Efforts to observe the females ovipositing and to find the larvae in the autumn of 1958 failed.

There are of course many insects associated with the natural, relatively stable habitats of these plants which do not occur in this area. Already the writer is beginning to find the value of establishing which species are absent and asking why related species thrive. It is by observing the limiting conditions of the environment of a species that most can be learned about its special adaptations, a method of investigation which is particularly profitable in Britain, situated as it is on the western edge of the Palearctic region.

This strip of Thames-side is one of the fast disappearing links in the chain of overgrown areas connecting the Essex coastal marshes and rubbish tips, through the parks and bombed sites neglected because of lack of manpower in the 1940's, to the remaining open areas in west Middlesex and beyond. The creation of this chain coincided with a surge of migrant and vagrant insects, and doubtless other creatures, a stream which will continue for as long as the European climate continues to show its current trend. It has enabled these invaders to spread up the Thames valley in a period of time which would not before have been possible. Some of the established species are only now spreading far from the river and are still supported almost entirely by the abundance of their foodplants in these artificial habitats. The maintenance of these areas close to London in cases where, as at Chiswick, they are not subject to rebuilding, would greatly facilitate the prompt recognition and study of these additions to our fauna and flora. The author hopes that the heavy hand of the park-keeper or builder will not descend on this area and destroy its interest for the naturalist.

The Survey of Bookham Common

SEVENTEENTH YEAR

Progress Report

ATTENDANCES at most of the monthly meetings were poor compared with those of recent years and there also seems to have been less enthusiasm shown by some of the regular nucleus of workers, a few of whom have been visiting the Common since the beginning of the survey in 1941. Much may, perhaps, be attributed to the very wet year, resulting in most of the Common becoming either water-logged or extremely muddy. The Common is also becoming increasingly difficult to traverse, owing to the general increase in height of the vegetation and density of scrub on the former open plains and to the dense undergrowth in much of the woodland and on the "paths." Nevertheless, as the reports and papers that follow show, useful work is still being done and there is much in members' notebooks awaiting publication.

At the Society's Centenary Exhibition, two panels devoted to the Bookham Common Survey were arranged, one on the Feeding Niches of Woodland Birds by Miss D. A. Rook and the other on the Vegetation by Mr. G. R. Conway.

C.P.C.

VEGETATION. (Report by C. P. Castell).

Further notes were made on the vegetation of the deturfed areas in Western Plain and of Station Copse; Mr. A. W. Jones contributes an account of the latter on p. 61. Comparative photographs were taken of sites on the common, photographed in previous years, to show the changes in vegetation. A note by Mr. E. W. Groves on some of these changes in Eastern Plain appears on p. 60.

INSECTS. (Report by E. W. Groves.)

The following insect records are new to Bookham Common.

COLEOPTERA

Hyadaticus seminiger De Geer. A singleton collected from a bomb crater near I.O.W. Pond, 8/4/1956 (I. Lansbury). Mr. Lansbury reports that this species is exceedingly rare and seems to turn up in various localities around London; he has taken it on several occasions in Hertfordshire.

HEMIPTERA-HETEROPTERA

Sehirus bicolor (L.). A single specimen swept from *Lamium album* by Bookham Stream, Western Plain, 9/5/1954 (E. W. Groves).

Ischnodemus sabuleti (Fall.). Swept from edge of I.O.W. Pond and Western Plain on several occasions (E. W. Groves).

Xylocoris cursitans (Fall.). An adult and two nymphs were found beneath bark of a dead tree trunk lying on the ground near Hollow Path, 21/6/1955 (E. W. Groves).

Lygocoris spinolae (Mey.-Dur.). Two females of this species were taken on low herbage between Bookham Stream and S.E. Wood, 16/8/1955 (E. W. Groves).

Polymerus palustris (Reut.). Several specimens swept from *Galium palustre* during 1953 and 1955 by I.O.W. Pond, on I.O.W. Plain and in Eastern and Western Hollows. (E. W. Groves). A specimen taken on 16/8/53 was the first record of this species for Surrey (see Groves, E. W., 1954, *Ent. mon. Mag.*, 21).

Dicyphus errans (Wolff). Swept from *Urtica dioica* and *Stachys sylvatica* in June and July, 1956 and 1957 from Central Wood and Eastern Hollow (E. W. Groves).

Psallus falleni Reut. Beaten from *Betula* at edge of S.E. Wood, 9/10/1955, (E. W. Groves).

Velia caprai Tam. In Bookham Stream near stone bridge S.W. corner of I.O.W. enclosure, 8/5/1955 (C. J. F. Bensley).

Gerris gibbifer (Schum.). Several specimens of this widespread species collected from Bookham Stream, 9/5/1954 (I. Lansbury).

Corixa panzeri (Fieb.). A singleton from Lower Eastern Pond, 10/4/1954 (I. Lansbury). This is essentially a coastal species and not very common inland (I.L.).

Hesperocorixa castanea (Thoms.). A singleton from Lower Eastern Pond, 10/4/1954 (I. Lansbury). This species is usually found in habitats with a rather high pH value and deficient in bases (I.L.).

BIRDS. (Report by G. Beven).

Regular census work on Western and Isle of Wight plains has been continued by W. D. Melliush and a small band of helpers. Further studies have been made on the feeding niches of birds in the oakwood and some results are reported on page 64.

A census of the territories of singing males of certain birds was taken in Eastern Wood in the spring of 1956 and again in 1958 (but not in 1957). The results are as follows, the figures following each species being the numbers found in the 40 acres during 1956 and 1958 respectively:—

Robin 24, 32, Wren 7, 16, Blue Tit 14, 13, Great Tit 12, 4-5, Blackbird 7-8, 11-12, Chaffinch 6, 4-5, Willow Warbler 17-18, 12, Chiffchaff 4-5, 1-2. In the autumn of 1957 unusually large numbers of Blue and Great Tits were observed over a wide area of southern Britain. This was probably due to a highly successful breeding season during 1957 both in Britain and on parts of the "continent." It is therefore of interest that in 1958 in Eastern Wood the numbers of Blue Tits in the spring had not significantly changed. On the other hand the Great Tits had been reduced to about half the population noted during the previous seven years or so and Dr. D. Lack ("The Natural Regulation of Animal Numbers" 1954, Oxford), suggests that of certain insectivorous woodland birds fewer might survive from a large than from a moderate population at the start of the winter, as with a large population more of the available insects would be consumed before the spring. Further comparison of our results with those found in previous years (*London Naturalist*, No. 35, 1956, pp. 21-32), shows that in 1958 the Robins had increased to the 1953-1954 level and the Wrens had recovered their numbers after maintaining a rather low level for the previous four years. The Blackbirds have shown considerable annual fluctuations for the last ten years, but the Chaffinch population seems to have decreased slowly since 1951.

Miss D. A. Rook and other members have been collecting Tawny Owl pellets in Eastern Wood and the results of an examination of these are given in the Progress Report on Mammals.

MAMMALS. (Report by G. Beven.)

In the Progress Report for 1954 a list was given of the bones found in the pellets of the Tawny Owl (*Strix aluco*) collected between 1951 and 1954 in Eastern Wood (dense oakwood with some grass rides). Since then more pellets have been found, mainly by Miss D. A. Rook in the

same area (map ref. 651). The results of an examination of these are compared below with the previous figures. In order to estimate the proportion of the different animals in the owl's food, some correction is needed for their unequal size. The method used by H. N. Southern 1954, *Ibis*, **96**, p. 392) is adopted here. The mean weight (20 gm) of a small mammal is taken as one "prey unit" and the numbers of the other animals are multiplied by the ratio of the weight of each species to the prey unit (conversion factor). The quantity of each species is then expressed as prey units and also calculated as a percentage of the total prey units (284). The mean weights taken for the Rabbit (200 gm) and Brown Rat (100 gm) are for young animals, as Southern believes that anything larger is too heavy for the owls to tackle. The figures suggest some similarity of the proportions of prey in the two four-year periods. The main vertebrate constituents of the diet were Field and Bank Voles and Wood Mice. Remains of Rabbits were first found in the pellets

	Number of individuals			Multiply by "conversion factor"	Prey units	%
	1951-1954	1955-1958	Total			
Pigmy Shrew <i>Sorex minutus</i>	1	0	1	0.2	0.2	0.1
Common Shrew <i>Sorex araneus</i>	4	6	10	0.5	5	1.8
Shrew <i>Sorex sp.</i>	2	0	2	0.5	1	0.35
Mole <i>Talpa europea</i>	0	2	2	5	10	3.5
Whiskered Bat <i>Myotis mystacinus</i>	1	0	1	0.25	0.25	0.1
Rabbit <i>Oryctolagus cuniculus</i>	0	4	4	10	40	14.1
Bank Vole <i>Clethrionomys glareolus</i>	20	37	57	1	57	20.1
Field Vole <i>Microtus agrestis</i>	29	43	72	1	72	25.4
Wood Mouse <i>Apodemus sylvaticus</i>	29	31	60	1	60	21.1
House Mouse <i>Mus musculus</i>	1	0	1	1	1	0.35
Brown Rat <i>Rattus norvegicus</i>	3	2	5	5	25	8.8
Birds ? Species	3	6	9	1	9	3.2
Birds, House Sparrow <i>Passer domesticus</i>	0	3	3	1	3	1.0
Total	93	134	227	—	284	99.9

In the woodland, Grey Squirrels *Sciurus carolinensis* have recovered their numbers somewhat, but are probably not as numerous as in 1950-52,

in early 1958. It was noticed that this mammal had become numerous again at Bookham in 1957 after being considerably reduced by myxomatosis in 1954. The bones of Moles were recovered from the pellets for the first time in early 1958 and it was thought that Mole "runs" were perhaps more numerous in Eastern Wood in that year than in the previous period. The House Sparrows and House Mouse may have been taken near the cottages round Greendell.

A Note on the Heather and Bracken on Eastern Plain, Bookham Common.

By E. W. GROVES

Castell and Jones (1958) in their notes on the vegetation of Eastern Plain give the common heather or ling (*Calluna vulgaris*) as being widely distributed over the area. This assessment, based on several years of observations by these authors up to 1955, does not, however, appear to be true at the present time.

From my own observations heather was still in quantity, certainly at the western end of the Plain, near Common Road south, in 1953. There is a species of plant bug, *Kleidocerys resedae*, quite common in S. England in suitable habitats, which is found on birches in summer but in winter seeks shelter in heather. Formerly it occurred in the locality mentioned above but I have not taken it on the heather there since 14/6/1953.

By 1954 heather along Tunnel Path at the eastern end of Eastern Plain was dying and by the following year was completely dead with no regeneration close by. The area of *Calluna* at the western end also seemed to be reduced in extent though bracken (*Pteridium aquilinum*) was more abundant. I have no recollection of the situation in the next two years but when I made a special point of visiting the locality on 21/7/1957 there was no heather there at all. Closer search later the same year, and again in 1958, failed to reveal any *Calluna* persisting here or elsewhere on Eastern Plain.

Although Bookham Common has had no systematic programme in the past of burning off the vegetation several fires have occurred within recent years. These have been mainly in springtime when much of the previous year's growth of grass and bracken is tinder dry. Occasionally these fires are of a more serious nature spreading widely, often to other parts of the Common. One such fire occurred in 1949, another in May, 1956 and again in May, 1957. That of 1956 burnt the Plain from end to end and extended across Eastern Hollow to a few yards beyond Hollow Path. All herbs and shrubs on Eastern Plain were destroyed as well as the lower branches of the birch trees, up to a height of 9-12 ft. Whilst such fires adversely affect many plant species, bracken is but little inconvenienced as its rhizomes are not damaged unless fire gains hold below ground-level. Indeed, at Bookham its growth appears to be particularly vigorous after fire and for this reason has probably hindered regeneration of heather on the Plain to the latter's ultimate detriment.

Spreadbury (1957) records that, at about the time of the first World War in 1914, the Plain was almost entirely covered with dwarf gorse and heather, but the drying out of what was formerly much damper heathland has been the principal factor contributing to the spread of the bracken (Castell and Jones, 1958). This situation is not, however, a feature unique to Bookham for it would appear that many other heaths and commonland

in the London area and elsewhere are now much drier than they were. Past floristic accounts give a number of semi-aquatic and bog species that are no longer present. The damp nature of these areas has changed and bracken now covers much ground that had been of botanical interest. Other localities formally noted for the beauty of their purple heather in autumn have also become overgrown with bracken. Limpsfield Common, on the Kent/Surrey border and site of an L.N.H.S. Survey prior to 1939, is a case in point. When the Ecological Section revisited the area on 27/9/1953, after a lapse of fourteen years, a marked change in the vegetation was evident in the enormous spread of bracken that had taken place during the 1939-45 War and subsequently. Certain features of the Common had become so obscured by *Pteridium* that they were hardly recognizable. Jacobs (1958) notes that the bilberry (*Vaccinium myrtillus*), formerly the dominant species of the undergrowth at the Chart, Limpsfield, is now almost entirely ousted. Only a fresh approach to management will prevent Bookham Common suffering the same fate. Trampling by cattle is one of the simplest ways of keeping the spread of bracken in check. Where money cannot be found to provide for its periodic clearance an answer to the problem is the re-introduction of controlled grazing. Not until some such means are adopted for reducing this pest at Bookham is the return of former vegetation likely. Only then is there a possibility of heather once again flourishing on the Common as it did fifty years ago.

REFERENCES

- CASTELL, C. P., and JONES, A. W., 1958. Notes on the Vegetation of Eastern Plain. The Survey of Bookham Common, 16th Year. *London Naturalist*, 37, 58-65.
 JACOBS, S. N. A., 1958, Biotopical Changes during the Twentieth Century. *Ent. Rec.*, 70, 225-229.
 SPREADBURY, W. H., 1957, Bookham Common before 1914 and after. The Survey of Bookham Common, 15th Year. *London Naturalist*, 36, 54-57.

The Flora of Station Copse, Bookham Common

By A. W. JONES

When the railway was built from Leatherhead to Effingham in 1885, it cut off the part of Bookham Common to the south of the present Survey Area and isolated a small triangle of private land to the north. This triangle was named "Station Copse" by the Survey team and is about 350 feet along its longest side bordering Bookham Station, 300 feet in the north-west and 150 feet in the north-east.

From an aerial map it can be seen that two lines of tall elms converge on the station from the south and re-appear on the other side as the north-east and north-west sides of Station Copse.

The title to this land appears to have lapsed and it has become common land by use. As the land was part of a much larger area of the Common enclosed probably between 1550-1615 (Harvey, 1943) it was a welcome return.

Station Copse consists basically of the elms along its north west and north-east sides, its southern side being bordered by a bank which slopes up a few feet to the level of the station.

One can conjecture that at first the elms were no more than a hedge and the rest of Station Copse a part of the bisected meadow. No animals would graze and trample it and the suckers from the growing elms would slowly invade the area, as would other shrubs, gradually outsting the meadowland vegetation. The building of the station, and the bank to it,

would affect the drainage and in fact a marshy area exists in the south-east. All these habitats had their attendant plants and in addition the wasteland habitat of the station and the passage through the copse of human beings (and these are not limited to naturalists) introduced wasteland plants.

The flora should of course, be considered in the habitats in which it occurs. Here, however, habitats are in constant juxta-position to each other, some super-imposed on each other and all in a process of change, making it impossible to allocate some plants to their relevant habitat by inspection in the field. In the notes which follow, the plants present have largely been classified according to observations made in the field but many of the less frequent plants have had to be classified under their normal habitats.

The frequencies given cover the whole area unless otherwise stated and do not refer to a particular habitat. The reason for this is that it would be very difficult to ascertain the extent of a particular habitat; indeed grassland is non-existent although plants lingering from the habitat still remain.

The Copse was visited on a number of occasions from 1954 to 1958, by myself often accompanied by members of the Survey team, two of whom, C. P. Castell and G. F. Lawrence, must be thanked for reading this paper and making useful suggestions.

The nomenclature used in this paper follows the *List of British Vascular Plants* (1958) prepared by J. E. Dandy, and in order to save space authors' names are omitted.

THE ELMS

Apart from the 50-foot Common Elms (*Ulmus procera*) along the north-west and north-east sides there are also 4 similar trees in the north corner. All through the copse, elm suckers have grown to a height of 20-25 feet, but there are a few rather open spaces on the east side where more light penetrates.

THE SCRUB

Ivy (*Hedera helix*) is frequent on the tall elms. Brambles (*Rubus* spp.) are frequent along the south side where they benefit from the sun. Elder (*Sambucus nigra*) is occasional and Hawthorn (*Crataegus monogyna*) and Field Rose (*Rosa arvensis*) are local. Also present are Blackthorn (*Prunus spinosa*), Ash (*Fraxinus excelsior*), Common Honeysuckle (*Lonicera periclymenum*), Sallow (*Salix caprea*), Grey Sallow (*S. cinerea*), the rare var. *laciniata* of the Elder and a few Holly (*Ilex aquifolium*) seedlings.

WOODLAND

1. THE DENSER PARTS

Sweet Violet (*Viola odorata*), Ground Ivy (*Glechoma hederacea*), Green Veined Dock (*Rumex sanguineus*) and Cuckoo Pint (*Arum maculatum*) are frequent. Lesser Celandine (*Ranunculus ficaria*) Field Scorpiongrass (*Myosotis arvensis*), Germander Speedwell (*Veronica chamaedrys*) and Bugle (*Ajuga reptans*) are occasional. Also present are Male Fern (*Dryopteris filix-mas* agg.), Wood Avens (*Geum urbanum*), Red Currant (*Ribes sylvestre*), Primrose (*Primula vulgaris*), Knotted Figwort (*Scrophularia nodosa*), Gladdon (*Iris foetidissima*), Twayblade (*Listera ovata*), Hairy Brome (*Bromus ramosus*) and Wood False Brome Grass (*Brachypodium sylvaticum*).

2. THE MORE OPEN PARTS

Rough Meadow Grass (*Poa trivialis*) is frequent. Herb Robert (*Geranium robertianum*), Meadow Pea (*Lathyrus pratensis*) by station, Fragrant Agrimony (*Agrimonia odorata*) and Tufted Soft Grass (*Holcus lanatus*) are all occasional. Also present are Greater Stitchwort (*Stellaria holostea*), Hedge Stonewort (*Sison amomum*), Self-heal (*Prunella vulgaris*), Hedge Woundwort (*Stachys sylvatica*) and Black Bryony (*Tamus communis*).

GRASSLAND

This habitat is now fast disappearing and even within the last eight years a little grassy clearing has become completely overgrown. A few ant-hills can still be found under the scrub. The plants present (all of which are rare) are Adder's Tongue (*Ophioglossum vulgatum*), Agrimony (*Agrimonia eupatoria*), Pepper Saxifrage (*Silaum silaus*), Cowslip (*Primula veris*), Common Ragwort (*Senecio jacobaea*), Hoary Ragwort (*S. erucifolius*), Field Woodrush (*Luzula campestris*), Spotted Orchid (*Dactylorhiza fuchsii*), Tufted Hair Grass (*Deschampsia cespitosa*) and Sweet Vernal Grass (*Anthoxanthum odoratum*).

WET PLACES

The south part is very wet and here Creeping Buttercup (*Ranunculus repens*) and Bittersweet (*Solanum dulcamara*) are present. Also present are Field Horsetail (*Equisetum arvense*), Ragged Robin (*Lychnis flos-cuculi*), Great Hairy Willowherb (*Epilobium hirsutum*), Hemlock (*Conium maculatum*), Creeping Jenny (*Lysimachia nummularia*), Mint (*Mentha* sp.), Marsh Bedstraw (*Galium palustre*), Hard Rush (*Juncus inflexus*), Pendulous Sedge (*Carex pendula*), Hairy Sedge (*C. hirta*), and Fox Sedge (*C. otrubae*), the last being occasional by the station bank.

WASTELAND

Common Nettle (*Urtica dioica*) is locally abundant and Cleavers (*Galium aparine*) occasional. Also present are Creeping Cinquefoil (*Potentilla reptans*), Goutweed (*Aegopodium podagraria*), Hogweed (*Heracleum sphondylium*), Burdock (*Arctium* sp.), Creeping Thistle (*Cirsium arvense*), Nipplewort (*Lapsana communis*) and False Oat (*Arrhenatherum elatius*). Wood Scorpion Grass (*Myosotis sylvatica*) is almost certainly a garden escape.

REFERENCE

HARVEY, J. H., 1943, Bookham Common: A Short History, *London Naturalist*, 22.

The Feeding Sites of Birds in Dense Oakwood

Bookham Common Surrey

By GEOFFREY BEVEN

DURING the three years 1956-1958 the Ecology Section has studied the various sites occupied by birds while feeding in dense oakwood at Bookham Common, Surrey. This type of work was started there by Chalke (1954), who investigated the vertical zonation in a part of the same wood. He demonstrated how different the feeding sites of birds might be and how some idea could be obtained of the place of the birds in the woodland community. Here it will be shown that each species has its own feeding niche and may thus live together with the others in the same oakwood and yet avoid direct competition for food. It is of special interest that this difference of niche is clearly demonstrated between related species such as the four tits of the Genus *Parus* which spend different proportions of their time in the various parts of the habitat.

HABITAT

The observations were made chiefly in Eastern Wood and also in similar woodland nearby. These woods are samples of mature pedunculate oakwood on damp clay and have already been described (Steele, 1947, Beven 1951, 1953). The oak *Quercus robur* is dominant; there are scattered birches *Betula* sp., but other trees are relatively scarce. Secondary growth of hawthorn *Crataegus* sp. is frequent and is often in dense thickets and there is locally abundant hazel *Corylus avellana*. Bramble and bracken comprise the chief ground vegetation, with some rose and honeysuckle. Very few plants grow in the dense shade of hawthorn. Some of the footpaths are grassy and others are bare.

METHOD

This is based on the work of Hartley (1953) and Gibb (1954). At each monthly visit records were made of the station in which a bird was seen feeding or apparently searching for food (even if unsuccessfully). To decide when a bird is searching is not always easy, but we do not think that this source of error was great, especially as Colquhoun and Morley (1943) concluded that the feeding niche may be taken as identical with the "niche" of occurrence in the non-breeding season. Birds which were singing or calling were not included unless they were also searching for food. To avoid the complication of the time in each niche an arbitrary rule of "one tree—one record" was adopted as suggested by Hartley (1953). The site recorded was where the bird was first seen and it was not recorded again until it had moved to another tree or bush. It is admitted that this method may have produced a slight bias in favour of small bushes as compared with large trees.

The feeding sites for our purpose are defined as :—

- (i) Ground—these sites were recorded separately and not in association with the tree or shrub above them as was done by Gibb (1954).
- (ii) Herb layer.
- (iii) Trunk—includes more or less vertical limbs in shrubs or trees.
- (iv) Branch—larger than $\frac{1}{2}$ inch in diameter and including more or less horizontal limbs in shrubs or trees.



Illustrations of Eastern Wood, Bookham Common, showing mature oaks and saplings and indicating the density of the shrub layer, which includes hawthorn, hazel and holly. The ground flora consists of bramble, bracken and rose.

Photos by G. Beven, February, 1959.

- (v) Twig—less than $\frac{1}{2}$ inch in diameter in shrubs or trees
 (vi) Leaves, buds, flowers, fruit, etc. in shrubs or trees. } tip

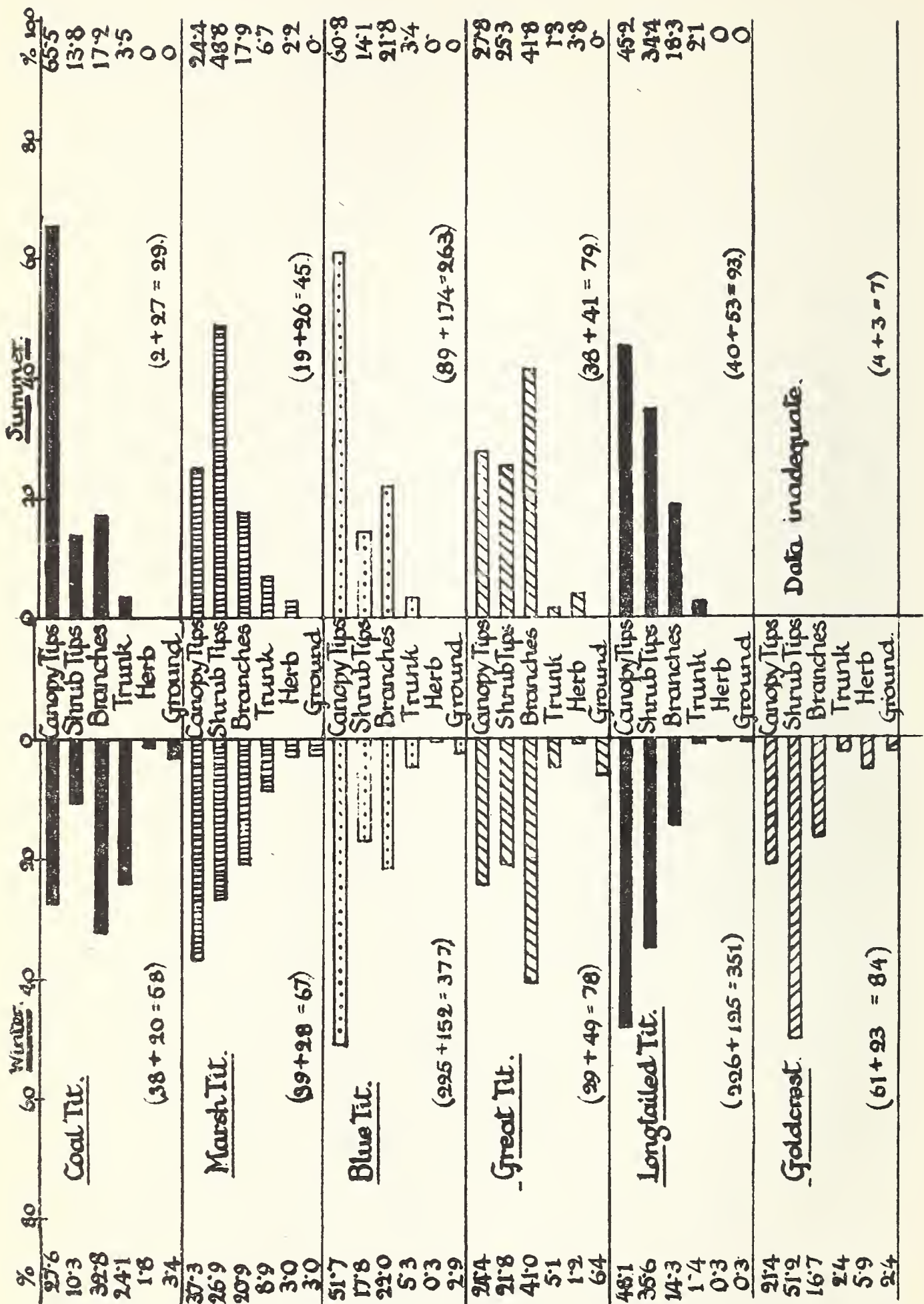
In expressing the results the word tips includes twigs and leaves, flowers and fruit if present. When a bird is perched on a twig, unless it is seen to take something it is usually difficult to be sure which of these sites it is actually searching. For practical purposes tip refers to twig, bud or fruit in winter (November to April) and to twig, leaf or fruit in summer (May to October). The term canopy includes the leaves, twigs and branches of the trees. However, birds which were seen on these sites in large trees, but which were below the height of the shrubs are included in the shrub layer. The upper canopy indicated by Colquhoun and Morley (1943) was not separately studied.

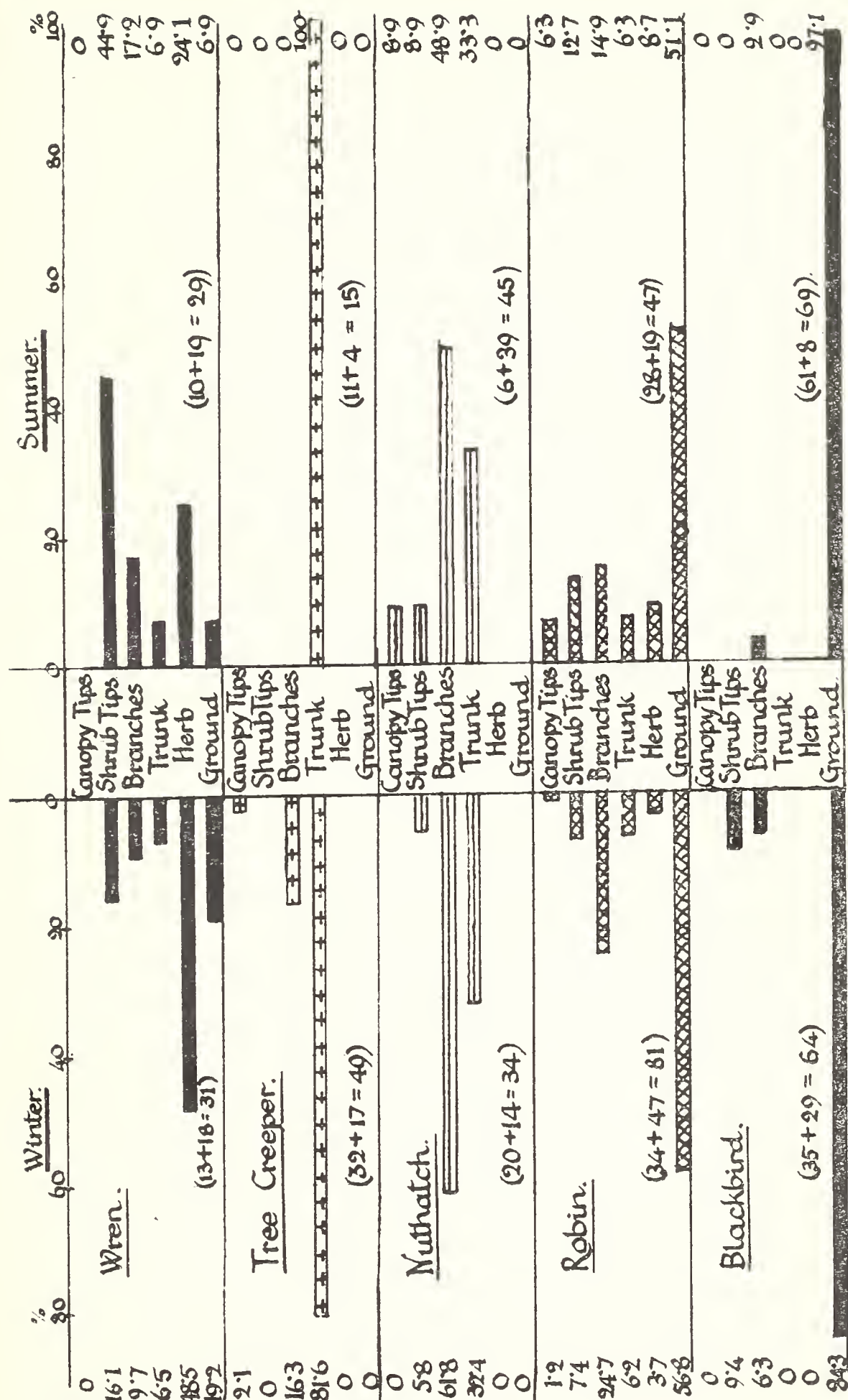
RESULTS AND DISCUSSION

There were not sufficient observations for analysis each month, but the year has been divided into two parts as mentioned above, summer when the deciduous trees mainly have leaves and winter when they are bare. Accurate comparison of the results with those of Hartley (1953) and Gibb (1954) is therefore not possible as they studied the zonation in much greater detail for each month or season. However, when comparison can be made our findings are broadly similar to theirs and also to those of Colquhoun and Morley (1943) who used a somewhat different technique in Bagley Wood and gave combined figures for the whole winter. Chalke (1954) confined his attention to the winter months and recorded the estimated height of the bird above the ground.

The Blue Tit *Parus coeruleus* fed largely in the twigs and leaves of the canopy, but also in the same parts of the shrubs and in the branches (Fig. 1A). Chalke (1954) found it feeding more frequently near the ground than we did, perhaps because the areas he studied had less shrubs. It was abundant and was numerically the dominant bird of the canopy as it was in Bagley Wood, and was also one of the birds most frequently found feeding in the shrubs and on the trunk (Table 1), especially in oak, birch and hawthorn (Table III). It showed a greater preference for oaks than did the other tits (Table II). It is of interest therefore, that from an analysis of the insect food, Betts (1955) considered that the Blue Tit fed mainly on insects in oak twigs, buds and leaves and in doing so it consumed large quantities of oakbud and gall tissue. She also found that it ate large numbers of scale insects, small larvae and pupae. At Bookham it often took the seeds from birch catkins and regularly pecked at the flesh of hawthorn berries. Of the four species of *Parus* studied, this has the shortest bill and therefore it is not surprising that these items are small.

On the other hand the Great Tit *Parus major* is a much bigger bird having the largest bill of the four species. Its diet would, therefore, be expected to show marked differences from that of the Blue Tit. The Great Tit fed much less in the canopy and more in the shrubs. It was seen on branches considerably more frequently than the Blue and also more often than Marsh or Coal Tits (Figs. 1A and 2). Adult insects, especially weevils, form a large part of its food according to Betts, who noted that like the Marsh Tit it also consumes more seeds and nuts than the other tits and the stout bill enables it to open tougher fruits. The Great Tit frequently fed in hawthorn and hazel and of all the tits studied it showed the most marked preference for these shrubs (Tables II and III). It was the only tit seen opening hazel nuts (although once a Coal Tit was seen





Figs. 1A and 1B. PERCENTAGE DISTRIBUTION OF FEEDING SITES OF BIRDS IN DENSE OAKWOOD.

The total observations for each species are analysed to show the proportion of records at each site. Records for winter (November to April) and summer (May to October) are shown separately. The figures at the end of each column give the percentage. The figures in brackets give the number of records, the first two being the number for the first and second three-month period, and the third number is the total for the six months (winter or summer).

flying away with one in its bill—it was not seen to open it). A Great Tit would pick a nut, strip off the bracts and carry it in its bill on to a branch where it would hold it down between its legs and hammer it vigorously with its bill. The noise of these blows and also of the hammering of the Nuthatch are characteristic of the wood in autumn. Much effort was required of the Great Tit and the nut would often turn round and need readjusting until at last a hole would be pecked in the shell and the contents removed piecemeal. The thickness of the shell was variable and there were many unsuccessful attempts to open the tougher nuts. These and other fruit, e.g. holly berries, were sometimes carried to another tree, often hawthorn, and opened there. Such records were excluded unless the fruit could be identified.

TABLE I
RELATIVE ABUNDANCE IN THE ZONES
The numerically dominant birds in each habitat in dense oakwood.

Canopy (1023)	%	Shrub (634)	%	Trunk (177)	%	Herb (44)	%	Ground (236)	%
Blue Tit	44.8	Longtailed Tit	27.4	Tree Creeper	31.1	Wren	50.0	Blackbird	51.3
Longtailed Tit	25.5	Blue Tit	22.2	Blue Tit	16.5	Robin	15.9	Robin	29.7
Great Tit	6.8	Great Tit	11.5	Nuthatch	14.7	Goldcrest	11.4	Blue Tit	4.7
Coal Tit	5.4	Goldcrest	8.0	Coal Tit	8.5	Great Tit	9.1	Wren	3.4
Marsh Tit	4.9	Marsh Tit	7.6	Marsh Tit	5.1	Marsh Tit	6.8	Jay	2.5
Nuthatch	3.0	Robin	5.7	Robin	4.5			Great Tit	2.1
Goldcrest	2.9	Wren	4.1	Great Spotted Woodpecker	4.5				
Chaffinch	1.8	Nuthatch	3.5	Longtailed Tit	3.9				
				Great Tit	2.8				
Other species	4.9	Other species	10.0	Other species	8.4	Other species	6.8	Other species	6.3
	100.0		100.0		100.0		100.0		100.0

The total observations in each habitat are analysed to show the proportion of records of different species feeding there throughout the year. The figure in brackets is the total number of records for each habitat.

At Bagley Wood, Oxford, Colquhoun and Morley (1943) found the Great Tit to be the dominant bird of the shrub zone in oakwood. At Bookham also it was certainly more a bird of the shrub than the Blue Tit. Forty-seven per cent of the feeding records of the Great Tit were in the shrubs, but only 22 per cent of the Blue Tits. However, we found the latter sufficiently numerous to occur twice as frequently in the shrubs (Table I). Why should Blue Tits be more common in the shrubs at Bookham? At Bagley the hawthorn was apparently very sparse and hazel not mentioned, whereas at Bookham there is much dense hawthorn and some hazel. However, this would hardly explain the different degree of dominance, as hawthorn and hazel would seem to favour the Great Tit (Table II). At Marley Wood, Wytham, Gibb (1954) also found the latter rather more evident than we did in the shrubs and although this wood had less hawthorn growth than Bookham, the hazel was perhaps more mature and abundant at Wytham and might well have attracted more Great Tits. At Bookham the larger number of Blue Tits in the shrub layer may have been due to the presence of many young oaks and also to the inclusion of the lower branches of some mature oaks in this layer. The tips of these oaks and the branches, especially if lichen-covered, were often frequented by Blue Tits (Table III). It should be noted that for most of the year the dominant bird of this zone at Bookham was the Longtailed Tit (Table I).

From an analysis of the insect food Betts (1955) considered the Great Tit in the Forest of Dean to be largely a ground feeder except in the breeding season, and Hartley's results for Wytham Great Wood, Oxford, certainly confirm this. Such a preference was not shown at Bookham, where the undergrowth was thicker. Parts of the Forest of Dean were sheep-grazed and the shrub layer much reduced; and from personal observations the secondary growth at Wytham was considerably less than at Bookham. Chalke (1954), working in a somewhat more open part of Eastern Wood, found a distinctly greater preference for feeding levels near the ground than we did. The greater density of the shrubs may thus explain why ground feeding was not nearly so marked at Bookham.

Gibb (1954) found, as we did, that the feeding habits of the Great and Blue Tits in winter differed more from each other than did those of the other *Parus* species examined. However, he and Hartley (1953) have both demonstrated that when in May the leaf-eating caterpillars are temporarily super-abundant, not only the Great and Blue, but also the Coal and Marsh Tits will often all feed together in the same sites.

TABLE II
PREFERENCE FOR THE DIFFERENT TREES AND SHRUBS

Table showing the percentage of feeding records in different trees and shrubs (throughout the whole year).

	<i>Nut-hatch</i>	<i>Blue Tit</i>	<i>Long-tailed Tit</i>	<i>Coal Tit</i>	<i>Marsh Tit</i>	<i>Great Tit</i>	<i>Gold-crest</i>	<i>Wren</i>	<i>Tree Creeper</i>
Oak	80	77	71	62	53	53	50	13	90
Hawthorn	4	7	5	9	12	24	25	21	0
Hazel	12	3	10	4	11	15	8	13	2
Birch	4	10	12	18	14	5	4	10	8
Other plants	0	3	2	7	10	3	13	43	0
	100	100	100	100	100	100	100	100	100

(Ground records have been excluded.)

Figures in bold type indicate the three species with the greatest preference for each tree or shrub (not necessarily numerically dominant).

N.B.—The oak is very much the dominant tree in the wood and most birds would therefore be expected to spend a large proportion of their time in it. Thus of all the feeding records in trees 68.4% were in oak, 10.3% in birch, 11.2% in hawthorn, 7.4% in hazel and 2.7% in other trees.

In winter the Coal Tit *Parus ater* fed mainly in canopy tips, and on branches and trunk, but in summer it moved rather more into the canopy, feeding less on the branches and trunk (Fig. 1A). As this bird breeds only in small numbers in this wood, the summer records are perhaps too scanty for firm conclusions to be drawn. Although it frequented the canopy as much as the Longtailed Tit in the winter it fed much more on the trunks and branches than did that species (Fig. 2). Of the tits it showed the greatest preference for birch trees, being fond of the catkins (Table II). When the upper side of a large branch was snow-covered in March, the bird was well able to search for food on the underside. Betts (1955) found it preferred small tree-living insects and scales. The branches and twigs in the canopy and shrub were the main winter feeding sites of the Marsh Tits *Parus palustris*, while in summer they showed a distinct preference for the tips of the shrubs rather than canopy (Fig. 1A and 2). Taking the year as a whole the Marsh Tit was almost as much a bird of the shrubs as the Great, 45 per cent of its feeding records being in the shrubs compared with 47 per cent of the Great Tits, 22 per cent of the Blue Tits and 16 per cent of the Coal Tits. The Marsh Tit, however, spent less time on the branches than did the Great (Fig. 1A). The diet of Marsh

Tits consists of adult insects, scales, some larvae and spiders and they eat more seeds and nuts than the Blue or Coal Tits (Betts). Care was needed in making the feeding observations because fruits, such as those of Marsh Thistle or rose hips gathered elsewhere might be brought to a hawthorn branch where they were held down and the seeds eaten. Willow Tits *Parus atricapillus* were relatively scarce and records too few for analysis. The Longtailed Tit *Aegithalos caudatus* spent much of its time at the tips of the canopy and fed more in the shrub tips than did the Blue Tit; 38 per cent of the "Longtails'" feeding records were in shrubs as opposed to 22 per cent of the Blue Tits. The branches were also searched (Fig. 1A and 2). Chalke found similar feeding places and Hartley considered the Longtailed to be the "titmouse of the twigs." Bookham woods had only small numbers in the breeding season; however, for most of the year not only was it frequent in the canopy, but it was the dominant bird of the shrub layer (Table I). In the more open woodland at Bagley this species was relatively less evident in the shrub zone and it may be that it fed more in this zone at Bookham because of the numerous oak saplings and the hazel shrubs there (Table III).

TABLE III
RELATIVE ABUNDANCE IN THE TREES AND SHRUBS
The numerically dominant birds in each tree or shrub in dense oakwood.

Oak (1220)	%	Birch (183)	%	Hawthorn (199)	%	Hazel (132)	%
Blue Tit	38.4	Blue Tit	32.8	Blue Tit	20.1	Longtailed Tit	31.8
Longtailed Tit	25.6	Longtailed Tit	28.4	Great Tit	18.1	Great Tit	16.7
Great Tit	6.6	Marsh Tit	8.2	Goldcrest	12.1	Blue Tit	15.2
Nuthatch	4.9	Coal Tit	7.7	Longtailed Tit	10.6	Marsh Tit	9.1
Marsh Tit	4.8	Great Tit	4.4	Robin	8.5	Nuthatch	6.8
Tree Creeper	4.7	Willow Tit	4.4	Marsh Tit	6.5	Goldcrest	5.3
Coal Tit	4.0	Tree Creeper	2.7	Wren	5.0	Robin	4.5
Goldcrest	3.7	Wren	2.7	Blackbird	4.0	Wren	4.5
Robin	2.0			Coal Tit	3.5		
Chaffinch	1.5						
Great Spotted Woodpecker	1.0						
11 other species each less than 1%	2.8	7 other species, each less than 2.5%	8.7	11 other species each less than 3%	21.6	4 other species, each less than 4%	6.1
Total	100.0	Total	100.0	Total	100.0	Total	100.0

This shows the percentage of records of each species of bird out of the total of all birds feeding in each kind of tree, throughout the year.
The figure in brackets is the total number of records in each tree or shrub.

Goldcrests *Regulus regulus* were scarce in summer, but invaded the woodland in winter when they hunted largely in the tips of the shrubs and to some extent in the canopy and on branches (Figs. 1A and 2). Fifty-six per cent of its feeding records were in the shrubs. This species was often seen in hawthorn and of all the birds studied showed the greatest preference for this shrub (Tables II and III). The Wren *Troglodytes troglodytes* is very difficult to observe in dense woodland and there are surprisingly few feeding records for such a numerous bird. However, the evidence suggests that its food was found entirely at the lower levels throughout the year, mainly in the herbage in winter, but more in the leafy tips of the shrubs in summer (Figs. 1B and 2). Likewise only one of Chalke's records was more than six feet above the ground. Colquhoun and Morley found that it was the dominant bird of the herb layer and this we readily confirmed (Table I). It would sometimes search a trunk, occasionally even climbing it like a Tree Creeper *Certhia familiaris*. As was expected most of the records of the latter were on the tree trunks where it was the

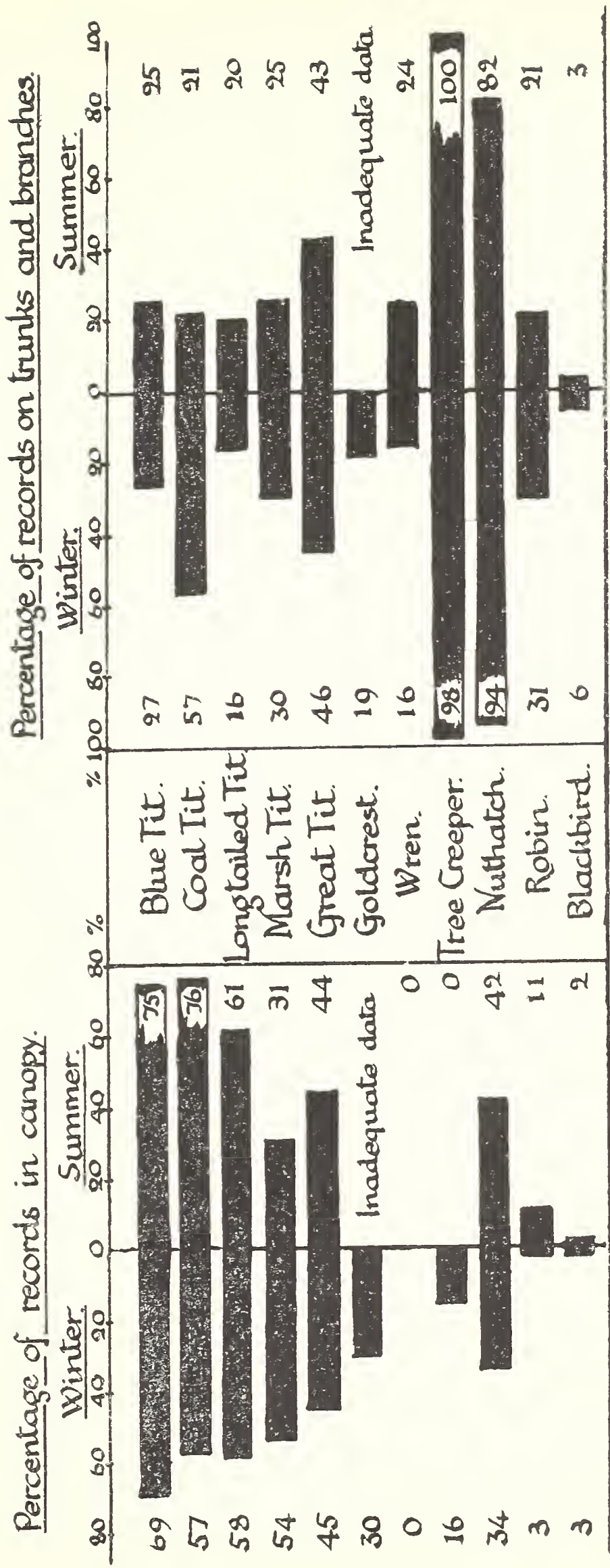


Fig. 2. DIAGRAM TO SHOW THE PROPORTION OF FEEDING RECORDS IN
 (a) canopy (as opposed to lower levels)
 (b) trunks and branches at all levels (as opposed to twigs, herb, ground, etc.)
 demonstrating that species differ in their choice of feeding sites under either
 one or both of these categories.

dominant bird (90 per cent of records being on oak). Only 16 per cent of the winter observations were on branches (Figs. 1B and 2, Tables I and II). The trunk and branches were also the main feeding stations of the Nuthatch *Sitta europea* which, however, occurred much more frequently on the branches than did the Tree Creeper. The tips of both canopy and shrubs were also visited, especially the hazel for the nuts (Figs. 1B and 2, Tables II and III). Owing to its habit of wedging hazel nuts in crevices in the bark in order to split them open, care had to be used in recording the correct feeding site, which is the place in which the food is looked for or actually found. The Nuthatch may regularly use one tree in which the crevices in the bark are most suitable for tightly wedging the nut shells. At least one oak trunk in this wood has contained as many as sixteen opened nuts, fifteen of these being within four feet of the ground.

The Robin *Erithacus rubecula* frequently took its food from the ground. Of all the ground records about 90 per cent were on bare ground or among leaf litter under shrubs or on narrow footpaths; in such sites the bird finds its food most readily (Lack, 1948). It should, however, be pointed out that 30 per cent of these ground observations were on footpaths and there is doubtless a bias in favour of recording these sites. Robins often examine the footsteps of the observers where the leaf litter has been disturbed! Hence there is an increased chance of the birds being seen there. They often search the ground from a point of vantage in the herbs or shrubs and it is sometimes difficult to be sure which level they are actually searching. However, robins have been seen to take food at these higher levels and even in the canopy (Figs. 1B and 2).

In this dense oakwood Blackbirds *Turdus merula* feed almost entirely on the ground where they turn over the leaf litter to find insects and earthworms. They do not, therefore, need to take advantage of human disturbance. In the winter there were a few feeding records in the shrubs, chiefly of birds taking the berries from hawthorn and perhaps sloe or ivy. The hawthorn fruit crop in this wood was very poor during these years, presumably because of the dense shade (Tansley 1949). In the more open wood at Bagley, Blackbirds fed only half as frequently on the ground and more often in the herb and shrub layers.

In general the trees and shrubs no doubt produce more potential food than the ground and herbage. It is not surprising, therefore, that the higher levels are regularly inhabited by a greater variety of species than the lower. The number of species comprising 2.5 per cent or more of the total feeding records in each zone can be seen in Table I, viz: the tree zone (including trunk) has ten species and the shrubs (including trunk) eleven species, while the herb and ground zones have only five species each. Table I indicates the relative abundance of different species in these habitats. It is important to bear in mind the relative size of the birds. A zone is likely to support more small birds than large ones. For example, Tree Creepers and Blue Tits were more often seen feeding on the trunks than were Great Spotted Woodpeckers *Dryobates major*.

SUMMARY

Investigation into the feeding sites of birds in dense oakwood demonstrates that each species has a different feeding ecology. It is of special interest that such differences are shown by four species of tits of the genus *Parus*. For example, the Blue Tit had the greatest preference for the canopy, the Great Tit for the branches of the shrubs, the Marsh Tit for

the shrub twigs and leaves and the Coal Tit for the trunk. Other differences are also described.

The Blue and Longtailed Tits were numerically dominant in the canopy and shrub layers (except in the breeding season), the Tree Creepers and Blue Tits on the trunk and the Wrens in the herbage, while the Blackbirds and Robins were most frequent on the ground.

The various preferences of birds for the common trees and shrubs, and also their relative abundance in them, are indicated.

Comparisons are made with similar studies in other woodlands. For example, the Great Tits fed rather less in the shrubs and very much less on the ground in the dense oakwood at Bookham than they did in more open woodlands. In the dense oakwood the Blackbirds fed almost entirely on the ground.

A greater variety of species fed in the trees and shrubs than on the ground and herbage.

ACKNOWLEDGMENTS

It is a pleasure to thank those members of the Ecology Section who have helped in this study. Miss E. M. Hillman and Miss D. A. Rook have given much valuable advice on the methods used and on the meaning and presentation of the results, and they have also done a great deal of the field work, with very considerable assistance from Miss M. E. Kennedy. Miss Hillman has also drawn the diagrams for this report. Mr. C. P. Castell has kindly given many useful suggestions after reading the manuscript. The help of the following members is also gratefully acknowledged: R. Cashmore, S. H. Chalke, Miss M. Guthe, P. Harland, C. Harrington, G. Harrington, J. F. Lawrence, J. C. Lord, A. F. Myers, Miss D. N. Noakes, Miss R. Osborn, J. Osborne, Miss C. Ross-Craig, Miss V. Ruffles, Miss K. E. Springett, H. Stanners, Mrs. R. Teagle, W. G. Teagle, Dr. A. G. G. Thompson.

REFERENCES

- BETTS, M. M., 1955, *Jour. Anim. Ecol.*, **24**, No. 2, 282-323.
 BEVEN, G., 1951, *London Naturalist*, **30**, 57-72. L.N. reprint No. 67.
 ———, 1953, *London Naturalist*, **32**, 51-77. L.N. reprint No. 75.
 CHALKE, S. H., 1954, *London Naturalist*, **33**, 47-51. L.N. reprint No. 81.
 COLQUHOUN, M. K., and MORLEY, A., 1943, *Jour. Anim. Ecol.*, **12**, No. 2, 75-81.
 GIBB, J., 1954, *IBIS*, **96**, 513-543.
 HARTLEY, P. H. T., 1953, *Jour. Anim. Ecol.*, **22**, No. 2, 261-288.
 LACK, D., 1948, *IBIS*, **90**, 252-279.
 STEELE, B., 1947, *London Naturalist*, **26**, 82-83. L.N. reprint No. 44.
 TANSLEY, A. G., 1949, *Britain's Green Mantle*. Allen and Unwin, London.

Some Hertfordshire Plant Records

By J. G. DONY, Ph.D., A.L.S.

THE list appended is supplementary to the records for V.-c. 20 Hertfordshire in *A Hand List of the Plants of the London Area* by D. H. Kent and J. E. Lousley published in parts in the *London Naturalist* between December 1951 and June, 1957. My interest in Hertfordshire plants began in February, 1955, and some of my early records were included in the later parts of the Hand List and in the Supplement to it.

Many of the records given here are for casuals and alien species and it is some consolation to know that the native flora of this, one of the lesser worked areas of the London region, is reasonably well known. Apart from a belt of woodland to the south of Hertford this is the least interesting part of Hertfordshire as much of it is now built up.

I wish to thank P. D. Sell and C. West for having named my material of *Hieracium*, and various members of the staffs of the British Museum (Natural History) and the Royal Botanic Gardens, Kew, for their assistance. Finally I trust that the publication of this list will encourage someone to provide a similar one for that portion of V.-c. 19 North Essex which is in the London area.

§ A species not in the Hand List, possibly new to the London area.

† Not listed for V.-c. 20 Herts in the Hand List.

* A specimen in Herb. Hitchin Museum.

Recorders in addition to those already given in the Hand List:—

A.G.B.	A. G. Brown
B.C.	B. Clay
H.B.S.	H. B. Souster
H.W.	H. Williams
L.Ll-E.	L. Lloyd-Evans
R.I.S.	R. I. Sworder
R.F.T.	R. F. Turney

‡ A joint record with the author.

Sequence and nomenclature follows the *List of British Vascular Plants* (1958) prepared by J. E. Dandy.

Asplenium trichomanes L., wall, Radlett Station, 1957.

Azolla filiculoides Lam., Long Pond, Totteridge Lane, 1957, D.J.H.‡

†*Myosurus minimus* L., field, Fanshawe's Back Lane, Brickendon, 1958, H.B.S.‡

†*Ranunculus circinatus* Sibth., gravel pit, Cheshunt Station, 1955.

†*Ceratophyllum submersum* L., Long Pond, Totteridge Lane, 1956,* D.J.H.

†*C. demersum* L., Nyn Pond, 1955*; gravel pit, Cheshunt Station, 1955; pond, Hadley Common, 1957.

†*Brassica juncea* (L.) Czern. & Coss., Mead Lane, c. 1926, A.W.G.; Bayfordbury, 1957, A.G.B. & H.W.; tip, Hoddesdon, 1958, L.Ll-E.‡

†*B. nigra* (L.) Koch, Mead Lane, c. 1926, A.W.G.; tip, Hoddesdon, 1958, L.Ll-E.‡

†*Lepidium heterophyllum* Benth., railway near Croxley Green, 1958, F.M.D.‡

L. campestre (L.) R.Br., gravel pit, Smallford, 1955; side of Hertford Heath, 1956*; railway bank, Hadley Wood, 1958, B.C.‡

†*Rapistrum rugosum* (L.) All., brickfield, Hertford, c. 1926, A.W.G.; tip, Hoddesdon, 1958,* L.Ll-E.‡

- †*Sisymbrium loeselii* L., Mead Lane, A.W.G. (see B.E.C. 1927 Rep. 387).
 §*Corrigiola litoralis* L., railway side, Oakleigh Park Station, 1958,* B.C.‡
 §*Montia fontana* subsp. *chondrosperma* (Fenzl.) Walters, Hertford Heath, 1956,* L.Ll-E.
 †*Amaranthus hybridus* subsp. *chlorostachys* (Willd.) Thell., tip, Cole Green, 1956.*
 §*A. quitensis* H. B. & K., tip, Hoddesdon, 1958*, L.Ll-E.‡
 †*Atriplex hortensis* L., Rickmansworth U.D.C. tip, 1958,* L.Ll-E and R.F.T.‡
 †*Abutilon theophrasti* Med., Rickmansworth U.D.C. tip, 1958,* L.Ll-E and R.F.T.
Geranium lucidum L., tunnel top, Watford, 1958,* Mrs. R. Altham.
 †*Medicago minima* (L.) Bartal., railway bank, Hadley Wood, 1958*, B.C.‡
 †*Trifolium ochroleucon* Huds., Bayfordbury, A.B.J. in B.E.C. 1916 Rep. 563; still there, 1958.
 §*Cicer arietinum* L., tip, Hoddesdon, 1958,* L.Ll-E.‡
 †*Lotus tenuis* Waldst. & Kit., Bayfordbury, 1957, D.J.B. and H.W.
 †*Lathyrus latifolius* L., many records.
L. nissolia L., side of Watford by-pass, 1958, P. Sheasby; Rickmansworth U.D.C. tip, 1958, L.Ll-E. and R.F.T.‡; gravel pit, London Colney, 1958.
 †*Sanguisorba officinalis* L., Totteridge Green, 1957, D.J.H.; side of Aldenham Reservoir, 1956*.
 §*Fragaria moschata* Duchesne, Bayfordbury, 1957, D.J.B. and A.W.
 †*Rosa tomentosa* Sm., Bayfordbury, D.J.B. and H.W.
Sorbus torminalis (L.) Crantz, many early records; Roman Road, south of Hertford Heath, 1956; Bishop's Wood, 1957; Wormley Wood, 1957*.
 †*Ribes nigrum* L., Bishop's Wood, 1956, F.R.; Goldings Wood, 1956, F.R.; Bricket Wood, 1957.
 §*Lythrum junceum* Banks & Solander, Rickmansworth U.D.C. tip, 1958,* L.Ll-E. and R.F.T.‡
 §*Epilobium adenocaulon* × *obscurum* det. G. M. Ash, Millwards Park, 1957.*
 †*Myriophyllum spicatum* L., gravel pit, Cheshunt, 1956.*
 †*M. verticillatum* L., gravel pit, Colney Heath, 1956.*
 †*Callitriche obtusangula* Le Gall, Colney Heath, 1957*; Balls Wood, 1958.*
 †*C. intermedia* Hoffm. Hertford Heath, 1956; Goose Green, 1956; Aldenham Reservoir, 1956; Bricket Wood, 1957; Bovington Common, 1958, E.M.-R.‡
 †*Cannabis sativa* L., tip, Hoddesdon, 1958, L.Ll-E.‡
 †*Salix triandra* L., Rickmansworth Aquadrome, 1958,* L.Ll-E. and R.F.T.‡
S. repens L., Hertford Heath, 1955.
 †*Myosotis sylvatica* Hoffm., R. Ash below Easneye, 1955, the western limit of a small area in which it is abundant.
Misopates orontium (L.) Raf., Bayfordbury, 1957, D.J.B. and H.W.
 †*Veronica filiformis* Sm., garden weed, Totteridge, 1956, D.J.H.
 †*V. agrestis* L., Whetstone, 1957, D.J.H. Frequent around Barnet.
 †*Mentha* × *smithiana* R. A. Grah., pond, Bricket Wood, 1955.*
 †*Salvia horminoides* Pourr., Bayfordbury, 1957, D.J.B. and H.W.
 †*Scutellaria minor* Huds., Bishop's Wood, 1956*.
 †*Galium mollugo* subsp. *erectum* Syme, Croxley Green, 1958, R.I.S.‡

- †*G. uliginosum* L., Panshanger, 1952, *R.M.P.*
Artemisia absinthium L., Bayfordbury, 1957, *D.J.B. and H.W.*; Millwards Park, 1957.
- †*Senecio* × *londinensis* Lousley, Mead Lane, 1957,* *A.W.G.*‡
- †*Carduus tenuiflorus* Curt., canal bank, Croxley Green, 1958, *R.I.S.*‡.
- †*Hieracium rigens* Jord., railway, south of Oakleigh Park Stn., 1958,* *B.C.*‡.
- †*H. trichocaulon* (Dahlst.) Roffey, Aldenham Reservoir, 1956.*
- †*H. strumosum* Ley., Bayford Wood, 1955* ; railway, New Barnet, 1957.
- †*H. vagum* Jord., railway, south of Brookman's Park, 1955*; railway, Wormley, 1956*; railway, Radlett, 1957.
- †*H. perpropinquum* (Zahn) Pugsl., Bricket Wood, 1955*; Hertford Heath, 1958.*
- †*Guizotia abyssinica* (L.f.) Cass., tip, Hoddesdon, 1958, *L.Ll-E.*‡
- †*Potamogeton pusillus* L., lake, New Barnet, 1958, *B.C.*‡.
- †*P. polygonifolius* Pourr., Hertford Heath, 1956,* *L.Ll-E.*; pond, Wormley Wood, 1957*, *A.W.G.*‡.
- Groenlandia densa* (L.) Fourr., still at Colney Heath‡.
- †*Zannichellia palustris* L., gravel pit, Colney Heath, 1957; lake, New Barnet, 1958, *B.C.*‡.
- †*Paris quadrifolia* L., Berrygrove Wood, 1957, *H.B.S.*‡.
- †*Lemna trisulca* L., Nyn Pond, 1957, etc.
- †*L. gibba* L., ditches near Cheshunt Station, 1955, *L.Ll-E.*‡
- †*Scirpus maritimus* L., gravel pit, London Colney, 1958.*
- †*S. fluitans* L., gravel pit, Cheshunt Common, 1956.*
- †*Carex otrubae* × *remota*, gravel pit, Colney Heath, 1958.*
- †*Bromus inermis* Leyss., railway, south of Oakleigh Park Stn., 1958,* *B.C.*‡.
- Aira caryophyllea* L., Bishops Wood, 1956; railway, Radlett, 1957.
- †*Phalaris minor* Retz., Rickmansworth U.D.C. tip, 1958,* *L.Ll-E. and R.F.T.*‡.
- †*Echinochloa frumentacea* Link, tip, Hoddesdon, 1958,* *L.Ll-E.*‡.
- †*Zea mays* L., tip, Hoddesdon, 1958, *L.Ll-E.*‡.
- †*Nitella flexilis* Ag., pond, Hawkshead Wood, South Mimms, 1957.*

Dulwich Woods: Relics of the Great North Wood

By J. EDWARD LOUSLEY

THE purpose of this paper is to present an account of the flora of private grounds in the Borough of Camberwell which include woodland which is a relic of the Great North Wood. That the part of this wood which remains is less than six miles from St. Paul's Cathedral, still extends for a mile, is not overrun by the public and has not previously been described by botanists, are features which may well cause surprise. Its preservation is due to the policy which the Estates Governors of Alleyn's College of God's Gift have pursued for so long in the management of their estate.

An appeal for records for the B.S.B.I. Maps Scheme for Grid Square 27/37, for which the L.N.H.S. is responsible, encouraged Mr. J. E. Woodhead, who is a resident on the College Estate, to take steps to obtain access to Dulwich Woods.* The list of plants he made on his early visits was of such interest that I asked to join him on June 24, and we examined the area together at intervals throughout the summer and autumn. Mr. Woodhead was accompanied by Mr. C. Avery on other visits made for the study of brambles.

THE GREAT NORTH WOOD

The Great North Wood formerly extended for a length of some five miles from near Selhurst, past Beulah Hill, the Crystal Palace and Honour Oak, to near Brockley. It covered the slopes of the ridge of high ground, and the two spurs which jut out to the west, over ground shown on geological maps as London Clay. Its name is commemorated in Norwood, and many place and road names refer to the former woodland. Examples are Forest Hill, Selhurst, Woodside, Westwood, and Wood Vale. Settlements on the fringe of the woods drew on them heavily for timber and fuel and there is evidence that by the mid 17th-century the woodland had been over-exploited.

Much of the Great North Wood belonged to the See of Canterbury and from an inventory prepared when the Archbishopric was dissolved during the time of the Commonwealth some evidence of the type of management (or mismanagement) can be gleaned. The Archbishop's wood at Norwood was amongst the assets seized, and the area was given as 830 acres estimated to contain 9,200 "oaken pollards," but only the miserable total of 80 timber trees (Anderson, 1898). No doubt the area of woodland was steadily reduced but Rocque's map of 1741-5 shows "Northwood" as still extending for some four miles. By then the large continuously afforested area was separated by a short gap from the northern "Oak of Arnon" wood—this was the Oak of Honour Wood, a famous haunt of 18th century naturalists which was near the present open space of One Tree Hill.

By the beginning of the 19th-century there had been further incursions into the woodland north of Dulwich, but the main mass was scarcely

* Known locally as Dulwich Wood, and so marked on the Ordnance Survey maps. I prefer the plural form since several woods with separate names are included, and also because the Dulwich Wood of botanical records probably covered Low Cross Wood, and perhaps other woods, as well.

reduced (Carey, 1800). Destruction on a large scale commenced soon afterwards, facilitated by the Inclosure Acts (such as Croydon Inclosure Act, 1800; Lambeth Inclosure Act, 1808, etc.). These paved the way for the replacement of woodland by streets and buildings. At the end of the century Anderson wrote:—"Within the memory of living men, the whole of Norwood Hill, including the ground on which the Crystal Palace now stands, was a wood; until Norwood joined Dulwich Wood and Gipsy Hill; the whole forming one immense irregular plantation of pollard oak, scrubs and furze" (Anderson, 1898).

DULWICH WOODS

The woodland on the estate settled by Edward Alleyn in the early 17th century for the endowment of "God's Gift College in Dulwich" was fortunately spared from the worst of this destruction. A terrier of the lands, tenements and woods belonging to the College in 1668 showed that they owned seven areas of woodland totalling 268 acres. This included "Peckamins Coppice" of 44 acres and "Low Cross Coppice" of 32 acres (Young 1889), and doubtless other woods to be discussed in this paper were included under other headings. The ordinances of fifty years earlier for the conduct of the endowment required 20 acres of woodland to be felled and sold annually (Art. 106), generous supplies of "faggots" to be provided for the Master and other officials (Art. 108), and that timber trees should be sold only to tenants (Art. 110) (Blanch, 1875). Management probably continued on these lines until transport facilities improved sufficiently to make coal for fuel, and timber for building, freely available from elsewhere. Trees are still protected on the estate and leases provide penalties for their destruction without prior permission.

A plan of the Manor of Dulwich dated 1806 shows woodland totalling about 203 acres. This is made up of Lapse Wood, 18 acres; Ambrook Hill Wood, 21 acres; Peckarman's Wood, 48 acres; and Low Cross Wood, 36 acres; of which parts still survive (Fig. 1). Vicars Oak Wood of 36 acres extended from Low Cross Wood on the west side and below what is now Crystal Palace Parade, up to Vicar's Oak which stood by the junction of Westow Hill, Church Road, and Anerley Road with the Parade. King's Wood, of 39 acres, was south-west of Sydenham Hill Station where Kingswood House is shown on modern maps. These two woods are now destroyed.

A plan of the College estate dated 1860 shows Lapse Wood, Ambrook Hill Wood, Peckarman's Wood and Low Cross Wood as continuous woodland. Since then the first two woods have been made narrower by the construction of the railway (now disused), and enclosure into the grounds of large houses has eaten heavily into Low Cross Wood and a little into Peckarman's Wood. Nevertheless the area shown as woodland on the current 2½-inch and 6-inch Ordnance Survey maps conforms closely to that shown on the plan of 1860. The private ground which we examined included Lapse Wood, Ambrook Hill Wood and Peckarman's Wood: a few notes are added on parts of Low Cross Wood observed from public roads and paths.

GENERAL DESCRIPTION OF THE AREA EXAMINED

The area to which we had access (Fig. 2) extends from College Road, Dulwich, near Sydenham Hill railway station, north-east to Cox's Walk,

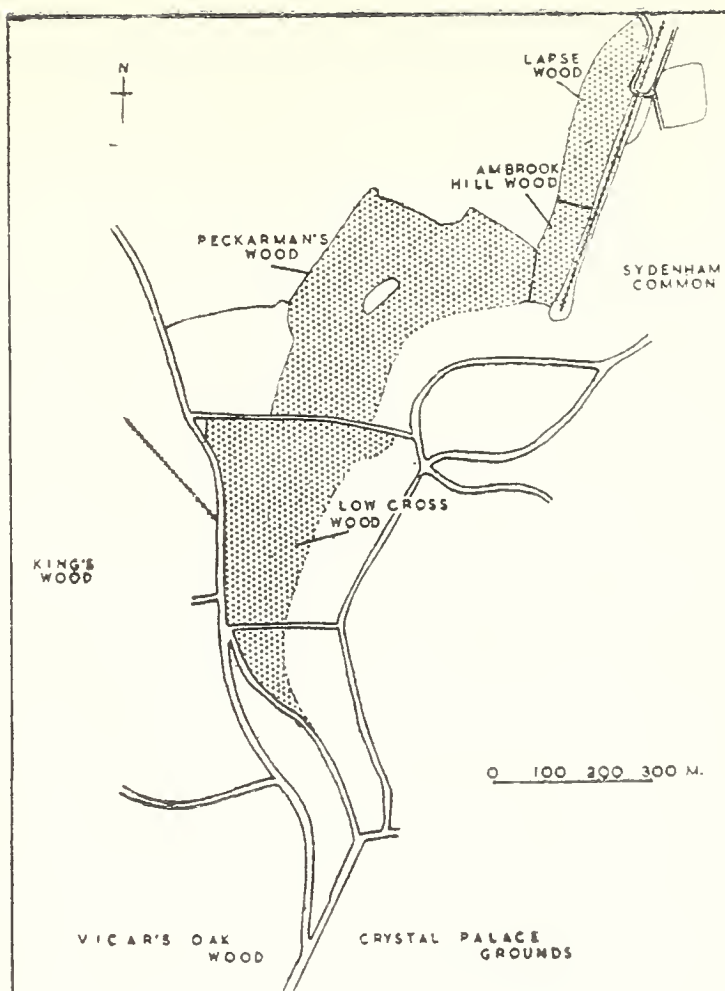


Fig. 1. APPROXIMATE PRESENT LIMITS OF SESSILE OAKWOOD IN DULWICH. The area of present sessile oakwood is shown stippled. The eastern boundaries of Peckarman's Wood and Low Cross Wood are very approximate as these are within numerous enclosures which we were unable to enter. In addition it is possible that a small detached portion of Ambrook Hill Wood still exists (see text). The approximate positions of the former King's Wood and Vicar's Oak Wood are indicated by their names.

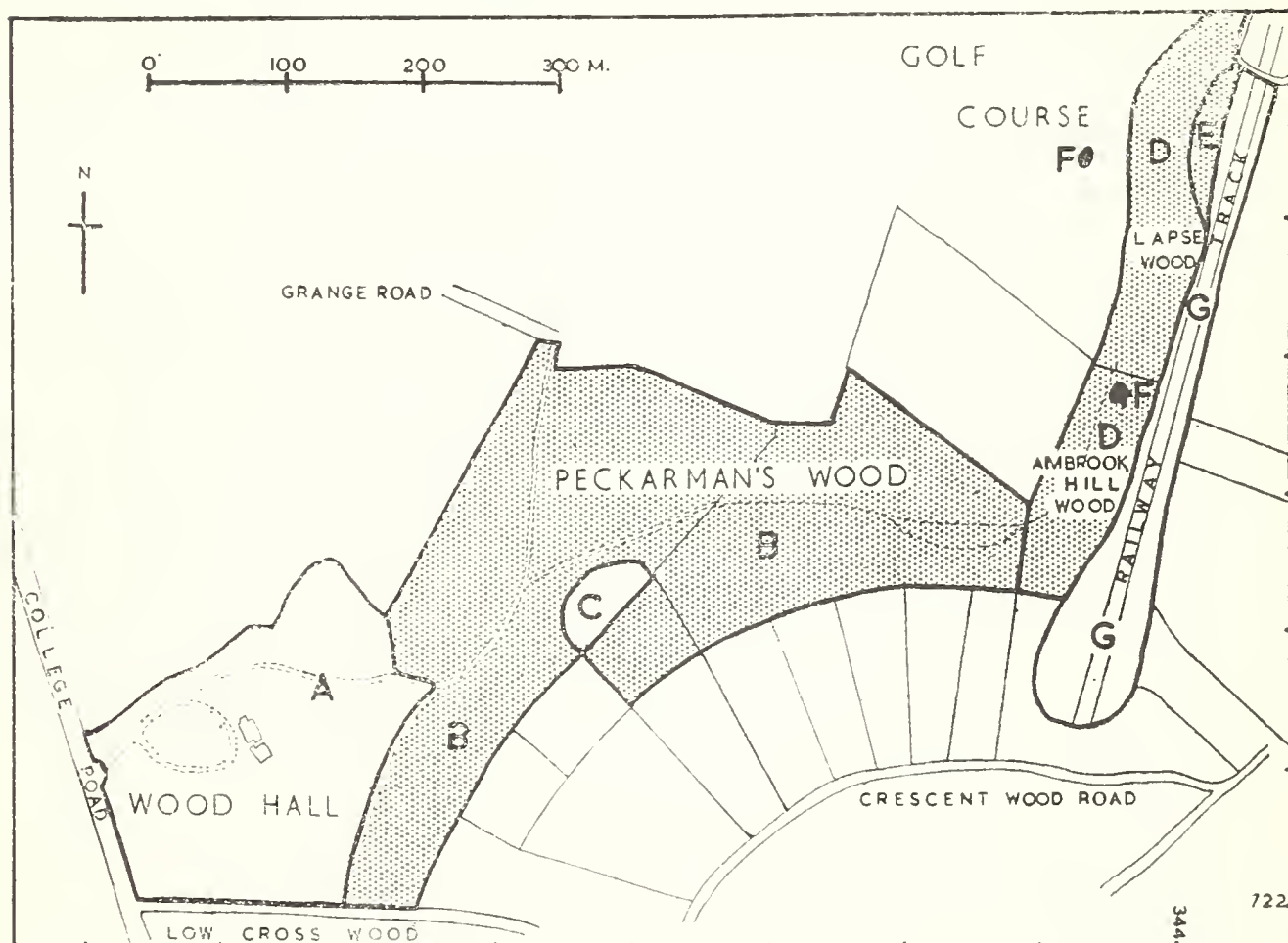


Fig. 2. DULWICH WOODS.

The private ground examined is enclosed in thick lines and sessile oakwood within this area indicated by stippling.

A=Wood Hall; B=Peckarman's Wood; C=site of tennis court; D=Ambrook Hill and Lapse Woods; E=acid ground at top of Lapse Wood; F=Ponds; G=Disused Railway Track.

near Lordship Lane. On the north side it is bounded by a pasture, the grounds of a Territorial Army establishment, and the links of the Dulwich and Sydenham Hill Golf Club; on the south side, by Low Cross Lane and the wooded grounds of houses in Crescent Wood Road, and on the east by the disused railway track of the High Level Line to the Crystal Palace. It has thus been protected from serious trespass. Prior to 1939, keys were issued to about 200 residents on the estate, and to members of the golf and tennis clubs, who were allowed to use the paths for exercise and for access to the clubs.

The land is at a height of 250 to 300 feet, on London Clay, and immediately overlooking what was Dulwich Common (though common rights and waste land seem to have been extinguished here at an early date). Most of the area is still woodland but out of this have been carved the grounds of Wood Hall and the disused railway track, which are also discussed. The area is known locally as Dulwich Wood (*sic*).

PECKARMAN'S WOOD

Throughout Peckarman's Wood (marked as "B" in Fig. 2) the dominant tree is sessile oak (*Quercus petraea*) forming a close canopy. The trees have very straight trunks contrasting sharply with the gnarled boles of very occasional common oaks (*Q. robur*), and are mostly some 50 to 60 feet tall. There are a few trees of wild cherry (*Prunus avium*), ash (*Fraxinus excelsior*), sycamore (*Acer pseudo-platanus*) and beech (*Fagus sylvatica*), and hornbeam (*Carpinus betulinus*) is very locally dominant over small areas, but throughout almost the whole wood sessile oaks form almost pure stands. The trees are irregularly spaced, and while the height of the canopy is fairly uniform, it is evident that there is considerable variation in age (Fig. 3a).

Characteristic associated shrubs are holly (*Ilex aquifolium*), guelder rose (*Viburnum opulus*), hazel (*Corylus avellana*), mountain ash (*Sorbus aucuparia*) and elder (*Sambucus nigra*). Over much of the wood bracken (*Pteridium aquilinum*) is dominant in the field layer. Sometimes bramble (*Rubus fruticosus*) is abundant in the bracken, while in some parts it is dominant. There are a few patches where the ground is almost bare, and here creeping soft-grass (*Holcus mollis*) is the characteristic species. Of herbs, bluebells (*Endymion non-scriptus*) are abundant (though colour forms suggest that there has been crossing with garden plants), dog's mercury (*Mercurialis perennis*) is locally abundant, wood dock (*Rumex sanguineus*) is very common, enchanter's nightshade (*Circaea lutetiana*) frequent, and wood anemone (*Anemone nemorosa*) rare. Wood sedge (*Carex sylvatica*) occurs locally, and two wood rushes (*Luzula pilosa* and *L. forsteri*) are each found in two places. In addition to *Holcus mollis*, the grasses in the wood include *Poa nemoralis* common, *Deschampsia caespitosa* and *D. flexuosa* occasional, and *Milium effusum* occasional. Male fern (*Dryopteris filix-mas*) is common. Along the sides of the rides there are cow parsley (*Anthriscus sylvestris*), nipplewort (*Lapsana communis*), wall lettuce (*Mycelis muralis*), wood violet (*Viola riviniana*) and occasional plants of two willow-herbs (*Epilobium montanum* and *E. adenocaulon*).

In one respect, at least, Peckarman's Wood is probably the most natural example of a sessile-oakwood in the London Area—it has been virtually free from the influence of trampling. As an exception to this statement, the part of the wood near the Army Training Centre was used for the



A. PECKARMAN'S WOOD

Bracken and bramble abundant



B. LAPSE WOOD

Holcus mollis abundant

storage of ammunition during the 1939-45 war, and ruins of the huts still remain. This part is now so overgrown that the undergrowth is indistinguishable from the rest. At a junction of rides near one of these huts there are two colonies of lily-of-the-valley (*Convallaria majalis*) and by one of them a few leaves of a *Helleborus* which is probably *H. viridis*. The former used to be not uncommon in woods about Dulwich (Curtis, 1785) but from their position I would hesitate to claim the present plants as a relic of a native colony. A few alien shrubs occur in the wood and of these rhododendrons (*Rhododendron ponticum*) and goat's-beard (*Aruncus sylvestris*) have certainly spread from seed.

In parts of the wood a yellow very sticky clay is exposed and probably this is the usual subsoil. Deep litter is not developed but below a few decaying leaves on the surface there is a black and very crumbly soil with fragments of vegetable matter and a few grains of sand. The pH is about 6.4. The following is a description of a small area at the Wood Hall end of the wood—it is representative of the vegetation throughout:—

Tree layer	<i>Quercus petraea</i> —dom., c. 50 ft. tall, in close canopy.
Shrub layer	<i>Corylus avellana</i> —occ. <i>Ilex aquifolium</i> —occ. <i>Acer pseudoplatanus</i> —occ. <i>Viburnum opulus</i> —r. <i>Sorbus aucuparia</i> —r. <i>Crataegus monogyna</i> —r. <i>Sambucus nigra</i> —r.
Field layer	<i>Pteridium aquilinum</i> —dom., c. 3 ft. tall. <i>Rubus fruticosus</i> aggr.—c. <i>Chamaenerion angustifolium</i> —occ. <i>Milium effusum</i> —occ. <i>Rumex sanguineus</i> —occ. <i>Endymion non-scriptus</i> —f.

There is some evidence that birch and furze were formerly more frequent in the wood and have been shaded out by the growth of the oaks in fairly recent years.

Near the centre of Peckarman's Wood there is a clearing (C) which was used until 1939 by a tennis club. The surface of the old hard court is now taken over almost completely by rosebay (*Chamaenerion angustifolium*) with which a few weeds of cultivation, such as goosefoot (*Chenopodium album*) and persicaria (*Polygonum persicaria*) are associated where the competition is less intense. The remainder of the clearing is mostly grassland with *Agropyron repens* dominant; *Arrhenatherum elatius*, *Alopecurus pratensis*, *Holcus lanatus*, *Agrostis stolonifera* and common sorrel (*Rumex acetosa*) common; lesser stitchwort (*Stellaria graminea*) local; *Dactylis glomerata*, frequent; *Deschampsia cespitosa*, *D. flexuosa* and ladies' bedstraw (*Galium verum*), rare. In addition there are a number of weeds of cultivation, and a thicket of raspberry (*Rubus idaeus*). Many of the species present appear to be relics of the turf used for a grass court and surround, or perhaps weeds of ornamental flower beds, but after 19 years the clearing is so overgrown that it would be almost impossible to recognize its former use without knowledge of its history.

AMBROOK HILL WOOD AND LAPSE WOOD

These two woods (D) form a belt of continuous woodland, varying from 125 to 200 feet in width, extending north from the east end of Peckarman's Wood. Even before the width was greatly reduced by the construction of the railway the two woods were treated as one (Anon., 1860) and it is difficult to fix the old boundary with precision. It probably

divided the woods just north of the pond where some change in the character of the vegetation can be detected.

The boundary between Peckarman's Wood and Ambrook Hill Wood is as shown in Figure 2. Near the boundary hornbeam is locally plentiful, but sessile oak remains the dominant tree throughout the woods now under consideration though there are differences in the field layers. In Ambrook Hill Wood, cocksfoot grass (*Dactylis glomerata*) is locally common amongst brambles under the oak; in Lapse Wood the field layer is more open. Here there are occasional brambles, but over much of the ground creeping soft-grass is dominant (Fig. 3b) while on the higher slopes wavy hair-grass (*Deschampsia flexuosa*) is plentiful.

At the top of Lapse Wood extending to part of the adjacent railway embankment is an area (E) with a markedly acid soil. A sample from under oaks was black, more crumbly than the one examined from Peckarman's Wood, and with numerous grains of silica. The pH was 5.1–5.2. Along the edge of the wood there is a greater variety of trees; in addition to sessile oak, mountain ash is plentiful, wild cherry, hornbeam, beech, and cut-leaved white beam (*Sorbus intermedia*) occur, and there are seedlings of yew (*Taxus baccata*). The more acid soil conditions are reflected in the occurrence of Sheep's sorrel (*Rumex acetosella*), wood sage (*Teucrium scorodonia*), heath woodrush (*Luzula multiflora*), a sedge (*Carex pilulifera*) and wavy hair-grass. Other species include two hawkweeds (*Hieracium perpropinquum* and *H. umbellatum*) and three grasses, *Poa pratensis*, *Holcus mollis* and *Anthoxanthum odoratum*. On the top of the embankment, in a position where seed might well have been voided by a bird, there is a clump of garden solomon's-Seal (*Polygonatum X hybridum*). The flora is thus a mixture of calcifuges with a few plants associated more with limestone soils.

In Ambrook Hill Wood there is a shallow, rather shaded pond (F). The only plants observed in the water were an uncommon grass (*Glyceria declinata*) and bittersweet (*Solanum dulcamara*) which were abundant, a few clumps of rush (*Juncus effusus*), and duckweed (*Lemna minor*) which did not appear until the autumn. A ditch leads in the direction of another pond on the open golf-course which has a richer flora including a water starwort (*Callitriche stagnalis*), a second rush (*Juncus articulatus*) and a dock (*Rumex conglomeratus*). Although the golf-course pond is a few yards outside the boundary of the area studied, the species found there have been included with those of the pond in the wood in the list appended to this paper.

THE DISUSED RAILWAY

The abandoned railway which forms the boundary on the east side of the area occupies ground which was formerly part of Lapse Wood and Ambrook Hill Wood. A fine beech copse beyond the railway at the north end, and trees in the large grounds of houses in Sydenham Hill towards the south end, are relics of woodland before the cutting was excavated in 1865. The line formed part of the High Level Line to the Crystal Palace between Lordship Lane and Upper Sydenham stations.

The last train was run on September 20, 1954, and the rails removed in 1957. The track, composed of small pieces of rock, is still in the early stages of colonization. False oat (*Arrhenatherum elatius*) and rosebay (*Chamaenerion angustifolium*) are abundant, seedlings of sycamore are common, and those of hornbeam locally abundant, and there are occasional seedlings of willow (*Salix cinerea*). Other species present on the track

include the following, none of them in quantity: *Conyza canadensis*, *Epilobium montanum*, *E. roseum*, *Linaria vulgaris*, *Medicago lupulina*, *Polygonum persicaria*, *Ranunculus repens*, *Senecio squalidus*, *Solanum dulcamara* and *Sonchus asper*. On the brickwork of the arch over the entrance to the tunnel grow four wind-dispersed species:—Male fern (*Dryopteris filix-mas*), birch (*Betula pendula*), dandelion (*Taraxacum officinale*), and sallow.

On the embankments by the railway, ash and sycamore are common, and birch and sallow frequent. Many of the herbs and climbers are plants characteristic of woodland fringes such as greater stitchwort (*Stellaria holostea*), traveller's joy (*Clematis vitalba*), agrimony (*Agrimonia eupatoria*), and greater bindweed (*Calystegia sepium*). Some are calcifuge, such as devilsbit scabious (*Succisa pratensis*), wood sage (*Teucrium scorodonia*), and fine bent (*Agrostis tenuis*). Others are plants most common on calcareous soils such as traveller's joy, wild mignonette (*Reseda lutea*), perforate St. John's-wort (*Hypericum perforatum*), and wild parsnip (*Pastinaca sativa*). It is on record that large quantities of fossils were found in the London Clay when the railway was constructed, and it may be that the presence of calcicoles is explained by the supply of calcium carbonate from very local pockets of fossils. Near the tunnel are large colonies of great horsetail (*Equisetum telmateia*), on both sides of the track, and another rather water-loving plant present is marsh thistle (*Cirsium palustre*). Aliens include *Buddleja davidii*, *Senecio squalidus*, *Epilobium adenocaulon* and *Crepis vesicaria* subsp. *taraxacifolia*, which are all wind-dispersed, and clumps of *Cardaria draba* and *Symphytum* × *uplandicum*, which are probably relics of former horticultural activities in adjacent enclosed ground.

WOOD HALL

The grounds of Wood Hall (A), on the west side of Peckarman's Wood, have been enclosed for at least a century and a half, although they are not shown on the map of 1806. A smaller house, known as Wood House, standing on this site was replaced prior to 1875 by the "stately family mansion" of Wood Hall standing in 24 acres of land sheltered by the woods. (Blanch, 1875). A magnificent garden was constructed with specimens of uncommon trees and an especially fine display of rhododendrons. The house and buildings were destroyed by a land-mine and high explosive bombs in September 1940.

When we visited the grounds in 1958 they had become so completely overgrown that it was extremely difficult to penetrate the thickets which had replaced the garden. It took several visits to find ways of forcing our way through the tangle of vegetation sufficiently to recognize even such major features as the site of the orchard and the water garden. That certain garden plants can compete with the most aggressive native species sufficiently to persist for 18 years is a matter of considerable interest. Only those which have been subject to full competition are included in the list at the end of this paper—exotic trees and shrubs not regarded as in full competition have been left out.

The woodland about the drive and along the frontage to College Road is of a very mixed type composed of planted trees (some of which have increased by suckers) with the addition of others self-sown. Elm (*Ulmus procera*), horse chestnut (*Aesculus hippocastanum*), of which seedlings are plentiful, lime (*Tilia* × *europaea*) and sycamore (*Acer pseudoplatanus*), are

the most abundant. Over about two acres behind the ruins of the house there is a curious association with goat's-rue (*Galega officinalis*) abundant and dominant, and bramble (*Rubus separius*) and rosebay (*Chamaenerion angustifolium*), locally dominant. Amongst these are such diverse plants as tufted vetch (*Vicia cracca*), hoary ragwort (*Senecio erucifolius*), marsh birdsfoot trefoil (*Lotus uliginosus*), michaelmas daisies (*Aster novi-belgii*) and golden rod (*Solidago canadensis*).

On the ruins of Wood Hall itself were a few species characteristic of old walls such as ivy-leaved toadflax (*Cymbalaria muralis*), a grass (*Poa compressa*), and *Buddleja davidii*. Near the road are further extensive ruined foundations which are now difficult to trace in the jungle of vegetation, and near these grew water figwort (*Scrophularia aquatica*) and marsh woundwort (*Stachys palustris*), and, towards the former orchard, stone parsley (*Sison amonum*). Where there was formerly a water garden—the stream through this has long been dry—at least three species of bamboo persisted in a thicket of brambles. By the drive, a short distance inside the gateway from the road, a few casuals and weeds of cultivation were added to the list. No doubt these arose from dumping of rubbish but the plants were the only evidence of this.

Thus the inclusion of species observed only from the grounds of Wood Hall in the list at the end of this paper, by swelling the number of aliens excessively, is liable to give a false impression of the whole area investigated. To have omitted them would have lost the opportunity of placing facts of interest on record, and they are clearly distinguished in the list. By the autumn of 1958 men and tractors were at work clearing tracks through the wilderness.

OTHER EXISTING DULWICH WOODLANDS

The account so far has dealt with the area enclosed in thick outlines in Figure 2. Access was not obtained to other areas of woodland in the district and the following descriptions are based on observations made from roads or public footpaths.

On the east side of the railway less than 100 yards from the footbridge to which Cox's Walk leads, reached by a very gravelly track, is an area of several acres of woodland. In this sessile oak is dominant with holly and mountain ash frequent, and a ground flora of bracken, bramble and ivy. This is a detached part of Lapse Wood cut off by the construction of the railway, and the name of the wood is commemorated in a "cottage" opposite and a large house at the junction of the track with Sydenham Hill.

A little south of this a large house named the "Hoo" in Sydenham Hill has extensive grounds leading down to the railway near the entrance to the tunnel. Blanch (1875, 417) recorded that these grounds included a portion of Dulwich Wood, and from the current Ordnance Survey maps it seems likely that these trees are still standing. If so, they represent a part of Ambrook Hill Wood.

Much of Low Cross Wood still persists though it is entirely enclosed in the private grounds of large houses and can be inspected only from Low Cross Lane, Rock Hill, College Road and Fountains Drive. Throughout, sessile oak is dominant with a few trees of holly, mountain ash, hornbeam, hawthorn (*Crataegus monogyna*) and hazel. In the ground flora, bracken, bramble and creeping soft-grass are in turn locally dominant. Round the edges there are occasional other trees such as horse

chestnut (seedlings abundant), yew (seedlings abundant), lime, ash and a few exotics. It is of interest that sycamore seems to be almost restricted to the margins and, unlike so many woods round London where it is a pest, to have made little headway in penetrating the oakwoods.

Sessile oakwood thus extends continuously for a distance of just on a mile from Cox's Walk (near Lordship Lane, Dulwich) to halfway up Fountains Drive (just below Crystal Palace Parade). There is no evidence of planting either from the present disposition of the trees, or historical records, and in any case it is most unlikely that such a large area would have been planted with the same species of tree to satisfy the local requirements. It regenerates extremely freely wherever there is a little open ground—for example there were hundreds of seedlings about the old reservoir at the top of Rock Hill. The appearance of the woodland is consistent with its having been managed as coppice and then allowed to grow unchecked for 150 to 200 years. The conclusion is inescapable that the native oak here is *Quercus petraea*, and that the very rare occurrences of *Q. robur* are due to planting. These old woods from Forest Hill to near Selhurst were all on slopes on London Clay growing under similar ecological conditions. Our earliest accepted record for Surrey for *Q. petraea* is from Norwood (Martyn, 1792) and it seems likely that this was the dominant oak over most, and perhaps all, of the Great North Wood.* It seems to me equally likely that the record at present accepted as the first for the county for *Q. robur* also refers to the sessile oak. Aubrey wrote in 1718 "In this Parish [Croydon] lies the great Wood, call'd *Norwood*, belonging to the See of *Canterbury*, wherein was an antient remarkable Tree, call'd *Vicar's Oak*, where four Parishes meet in a point. This Wood wholly consists of Oaks." The famous Vicar's Oak was at the end of Vicar's Oak Wood in the Dulwich series under consideration. From the evidence now produced there is good reason to believe that the oaks Aubrey had in mind were in fact *Q. petraea* and not *Q. robur* as hitherto assumed.

OLD BOTANICAL RECORDS

Published records for plants from the woods of Dulwich are disappointingly few and this may be partly due to measures taken to exclude trespassers. As already stated, Curtis in 1785 gives lily-of-the-valley as not uncommon in woods about Dulwich and it seems that it persisted there until at least the mid 19th century (Salmon, 1863). Coleman (1837) recorded wild service tree (*Sorbus torminalis*) from Low Cross Wood and in the same year, golden rod (*Solidago virgaurea*) was recorded from woods about Dulwich by Elizabeth Kent. These we have not refound. In Salmon (1863) there are records from Dulwich Wood of wild cherry as found by John Stuart Mill, and of morello cherry (*Prunus cerasus*), which is likely to have been a mistake for the last, mountain ash, white beam (*Sorbus aria*), regarded as planted, and of wood spurge (*Euphorbia amygdaloides*) found by J. D. Salmon himself. In addition there is a specimen of wood loosestrife (*Lysimachia nemorum*) from Dulwich Wood collected by D. Maher at the Natural History Museum. Detailed references for these records will be found in C. E. Salmon's *Flora of Surrey*, which also includes records from the wider area of the Great North Wood of another 20 of the species we found.

Of greater interest is a list of plants collected in Dulwich in 1879-1882 by S. W. Carruthers in a notebook in my possession. Only the initials of the compiler are given, but the contents of the book include extracts

from old works which were the basis of a scholarly paper on the "Botany of Dulwich" published in 1883. Of the 50 species listed for Dulwich in the notebook, 32 are included in my list for 1958 printed below, where they are marked "C." Woodland species found by Carruthers which we did not find include bugle (*Ajuga reptans*), lesser Celandine (*Ranunculus ficaria*) and cow-wheat (*Melampyrum pratense*). The absence of the first two from my list, like other common spring flowers such as three-nerved sandwort (*Moehringia trinervia*), wood sorrel (*Oxalis acetosella*), lords-and-ladies (*Arum maculatum*) and ground-ivy (*Glechoma hederacea*) not mentioned in Carruthers' short list, may be due to our visits not commencing sufficiently early in the season. By the end of June the thick growth of bracken and other tall plants in the woods would make them very easily overlooked.

In conclusion I would like to express my indebtedness to all who have helped in the preparation of this paper and especially to J. E. Woodhead whose enterprise brought this interesting area to my notice and who was my companion on all visits to the private ground. I am also grateful to G. M. Ash, C. E. Hubbard and P. D. Sell for assistance with the identification of *Epilobia*, *Gramineae* and *Hieracia* respectively, to the library staff of the Guildhall Library of the Corporation of London, of the Dulwich Library of the Borough of Camberwell, of Dulwich College, and of the Geological Museum for assistance in tracing books, manuscripts and maps, and to the Secretary of the Alleen's College of God's Gift Estates, and the Public Relations and Publicity Officer, Southern Region British Railways, for information.

REFERENCES

- ANDERSON, J. Corbet, 1898, *The Great North Wood . . . Upper, West and South Norwood* London (Privately printed).
 ANON. 1806, *Plan of the Manor of Dulwich*, Large manuscript wall map hanging in the office of the Secretary to the Estates Governors of Alleen's College.
 ANON, 1860, *Plan of the Manor and Estates of Alleen's College, Dulwich in the County of Surrey* (Copy at Dulwich Library).
 ANON, c. 1954, *Metropolitan Borough of Camberwell: The Official Guide*, Ed. 8, undated, London and Cheltenham.
 AUBREY, J., 1718, *Natural History and Antiquities of Surrey*, 2.
 BLANCH, W. H., 1875, *Ye Parish of Camberwell*.
 BLOOM, J. Harvey, 1926, *Bygone Streatham*, London.
 CAREY, J., 1800, *Survey . . . 15 miles round London on scale of 1 inch to a mile* (Copy in Guildhall Library).
 CARRUTHERS, S. W., 1882, *Notes on the Botany of Surrey* (Manuscript notebook in possession of the writer).
 CARRUTHERS, S. W., 1883, Botany of Dulwich, *Dulwich College Science Society, Fifth Annual Report*, (for 1882) 46-48.
 COCKSEGE, W. C., 1933, The Great North Wood, *London Naturalist*, 1932, 48-51.
 COLEMAN, W. H., 1837, in Watson, H. C., *New Botanist's Guide*, 2 (Suppl.), 581.
 CURTIS, William, 1785, *Flora Londinensis*, London.
 DANDY, J. E., 1958, *List of British Vascular Plants*, London.
 GALER, A. M., 1890, *Norwood and Dulwich: Past and Present*, London.
 MARTYN, T., 1792, *Flora Rustica*, 2.
 ROBINSON, F. E., 1878, Flora Dulwichensis, *Dulwich College Science Society, First Annual Report* (for 1878), 31-45. (Salmon, *Fl. Surrey*, 68, dismisses this as "quite impossible" but it seems to me that the title is misleading and the list, like others in the same *Report*, intended as a catalogue of specimens. It is clearly not a record of the local flora and no use has been made of it for this paper.)
 ROCQUE, John, *London in 1741-5*. (Reissued by Stanford, London, 1878).
 SALMON, C. E., 1931, *Flora of Surrey*, London.
 SALMON, J. D., 1863, *Flora of Surrey*, London.
 YOUNG, William, 1889, *The History of Dulwich College*.

* Since writing the above, I found further relics of sessile oakwood at Grange Wood, Thornton Heath; Convent Wood, Norwood; and Biggin Wood, Norbury. These add additional support to the above suggestion, and are being investigated further.

PLANTS OBSERVED IN DULWICH WOODS IN 1958

This list is based on visits made on June 24, July 10, July 17, July 23, August 11, and October 10, by J. E. Lousley and J. E. Woodhead. All records with the exception of those in brackets (which are from places nearby) are from the private ground which is the main subject of this paper.

The sequence and nomenclature are based on the *List of British Vascular Plants* (1958). Plants which are not native are prefixed by *. Frequency is indicated by terms abbreviated as follows:—ab.=abundant, c.=common, l=local, occ.=occasional, r.=rare, v.=very.

For species not widely distributed throughout the area examined, occurrences are indicated as follows:—

A—Grounds of Wood Hall.

B—Peckarman's Wood.

C—Site of Tennis Court in Peckarman's Wood.

D—Ambrook Hill Wood and Lapse Wood.

E—More acid area at top of Lapse Wood.

F—Ponds in Ambrook Hill Wood and on Golf Links.

G—Disused railway track and banks.

The letter "C" prefixed to the name of a species indicates that it appears in S. W. Carruthers' list of 1882.

- Equisetum telmateia* Ehrh.—l.ab. ; B, G.
Pteridium aquilinum (L.) Kuhn—ab.
Athyrium filix-femina (L.) Roth—v.r. ; A.
Dryopteris filix-mas (L.) Schott—c.
 forma *cristata*—r. ; A.
D. dilatata (Hoffm.) Sm.—r. ; B.
Taxus baccata L.—r. ; large trees in A, seedlings in A and E.
Helleborus viridis L.(?)—v.r. ; two leaves only seen by hut in B.
C *Anemone nemorosa* L.—r. ; B, in at least two places.
Clematis vitalba L.—r. ; A, G.
C *Ranunculus acris* L.—occ.
C *R. repens* L.—occ.
**Papaver somniferum* L.—v.r. ; one plant by drive in A.
Sinapis arvensis L.—v.r. ; by drive in A.
**Cardaria draba* (L.) Desv.—r. ; G.
C *Capsella bursa-pastoris* (L.) Medic.—v.r. ; A.
**Armoracia rusticana* Gaertn., Mey. & Scherb.—v.r. ; G.
Cardamine hirsuta L.—v.r. ; A (on ruins of house).
(*Rorippa sylvestris* (L.) Bess.—Grange Road.)
C *Alliaria petiolata* (Bieb.) Cavara & Grande—occ.
C *Sisymbrium officinale* (L.) Scop.—occ. ; A, G.
Reseda lutea L.—r. ; G.
Viola riviniana Reichb.—f.
**Hypericum elatum* Ait.—v.r. ; A.
H. perforatum L.—r. ; G.
Silene vulgaris (Moench) Garcke—r. ; A.
S. dioica (L.) Clairv.—occ. ; A, B.
Cerastium holosteoides Fr.—r. ; A.
C *Stellaria media* (L.) Vill.—occ. ; A, B, E.
C *S. holostea* L.—r. ; G.
S. graminea L.—r. ; A, C.
Chenopodium polyspermum L.—v.l. ; exceptionally large plants competing in low bramble scrub in A.
C. album L.—r. ; C.
Atriplex patula L.—v.r. ; A.
A. hastata L.—v.r. ; A.
**Tilia × europaea* L.—occ. ; A.
**Geranium phaeum* L.—v.r. ; large patch at bottom of grounds of 11 Crescent Wood Road.
**Acer pseudoplatanus* L.—c. ; rare in B, more plentiful in A, and colonizing the railway track in G.
**Aesculus hippocastanum* L.—Frequent in A.
Ilex aquifolium L.—c.
**Laburnum anagyroides* Medic.—r. ; A.
C *Ulex europaeus* L.—v.r. ; A, B. (One bush observed in each.)
Sarothamnus scoparius (L.) Wimm. ex Koch—r. ; A, G.
Medicago lupulina L.—r. ; G.
**Melilotus officinalis* (L.) Pall.—r. ; A,

- Trifolium pratense* L.—*r.* ; G.
 (T. *medium* L. On banks of the reservoir at top of Rock Hill.)
 C *T. repens* L.—*occ.*
 C *T. dubium* Sibth.—*r.* ; A.
 C *Lotus corniculatus* L.—*occ.*
 L. uliginosus Schkuhr—*occ.* ; A, F.
 * *Galega officinalis* L.—Locally dominant over large area in A.
 * *Robinia pseudoacacia* L.—Locally common in A, many seedlings.
 C *Vicia cracca* L.—*r.* ; A.
 C *Lathyrus pratensis* L.—*occ.*
 * *Aruncus sylvestris* Kostel.—*r.* ; B, scattered over about an acre, self-sown.
 Rubus idaeus L.—*f.* ; A (almost spineless), B.
 C *R. fruticosus* L. *sensu lato*—*ab.*

Rubus—the following segregates were determined by J. E. Woodhead:—

R. separinus Genev.—abundant throughout the woods.

R. pseudobifrons Sudre—*r.*

R. sprengelii Weihe—*r.* ; E.

R. foliosus Weihe & Nees—*r.*

R. euryanthemus W. C. R. Wats.—*r.*

- C *Potentilla reptans* L.—*occ.*
 Geum urbanum L.—*occ.* ; A.
 Agrimonia eupatoria L.—*r.* ; G.
 Rosa arvensis Huds.—*l.* ; F.
 C *R. canina* L.—*occ.* ; scattered bushes.
 Prunus avium (L.) L.—*r.* ; B, E.
 Crataegus monogyna Jacq.—*occ.* ; widespread.
 Sorbus aucuparia L.—*f.* ; most plentiful in E.
 * *S. intermedia* (Ehrh.) Pers.—*v.r.* ; E, two bushes apparently bird-sown.
 Malus sylvestris Mill.—*r.* ; A (probably descendants of cultivated apples).
 * *Philadelphus coronarius* L.—*v.r.* ; B, one bush at E. end of wood.
 Ribes sylvestre (Lam.) Mert. & Koch—*v.r.* ; B.
 R. uva-crispa L.—*v.r.* ; B, two bushes, far apart. and apparently bird-sown.
 Epilobium det. G. M. Ash.
 E. hirsutum L.—*f.* ; colour of petals variable.
 E. montanum L.—*occ.* ; A, B.
 E. × mutabile Boiss. & Reut. (*E. montanum* × *E. roseum*)—*v.r.* ; A.
 E. roseum Schreb.—*r.* ; A, G.
 * *E. adenocaulon* Hausskn.—abundant in open habitats in A, C and G ; occasional by tracks in woodland of B.
 E. lamyi F. W. Schultz—*r.* ; A.
 Chamaenerion angustifolium (L.) Scop.—abundant and locally subdominant.
 * *Oenothera biennis* L.—*f.* ; A.
 * *Fuchsia magellanica* Lam.—*r.* ; A.
 Circaea lutetiana L.—*f.*
 Callitriche stagnalis Scop.—*v.r.* ; F, in pond on golf course.
 * *Thelycrania sericea* (L.) Dandy—*r.* ; A.
 * *Aucupa japonica* Thunb.—Occasional in A, one bush by margin of B.
 Hedera helix L.—*ab.* (A large leaved garden form occurs in A.)
 C *Anthriscus sylvestris* (L.) Hoffm.—*c.* ; A, B.
 Sison amomum L.—Local in scrub in A.
 Aegopodium podagraria L.—*occ.* ; A, G.
 Aethusa cynapium L.—*v.r.* ; A.
 Pastinaca sativa L.—*r.* ; G.
 Heracleum sphondylium L.—*r.* ; A.
 Mercurialis perennis L.—*l.ab.* ; A, B.
 Euphorbia peplus L.—*r.* ; A, by drive.
 C (*Polygonum aviculare* L. *sensu stricto*—Grange Road.)
 C *P. persicaria* L.—*r.* ; A, C, G.
 * *P. cuspidatum* Sieb & Zucc.—several clumps in A.
 * *P. sachalinense* F. Schmidt—large clumps in A and B.
 Rumex acetosella L. *sensu stricto*—*v.l.* ; E.
 R. acetosa L.—*occ.*
 R. crispus L.—*occ.*
 R. × acutus L. (*R. crispus* × *R. obtusifolius*)—*v.r.* ; A.
 R. obtusifolius L.—*occ.*
 R. × dufftii Hausskn. (*R. obtusifolius* × *R. sanguineus*)—B, two plants.
 R. sanguineus L. Abundant throughout woods.
 R. conglomeratus Murr.—*v.r.* ; F, golf-course pond only.
 * *Rheum rhaponticum* L.—*v.l.* ; A, persisting as relic of cultivation.
 C *Urtica dioica* L.—*f.*
 Humulus lupulus L.—*r.* ; A (in hedge), G (railway bank).
 Ulmus procera Salisb.—*occ.*
 * *Platanus × hybrida* Brot.—*r.* ; A.
 Betula pendula Roth—*occ.* ; A, C, G.
 U. pubescens Ehrh.—*r.* ; A, B.
 Carpinus betulinus L.—*l.c.* ; B (east end), E, G. Seedlings frequent.
 Corylus avellana L.—*r.* ; A, E, G.

- Fagus sylvatica* L.—occ. ; B, E, G. A small beechwood adjoins the disused railway on the east side.
- Quercus robur* L.—occ. ; scattered trees.
- Q. petraea* (Mattuschka) Liebl—Dominant throughout B and D, scattered trees elsewhere.
- **Populus alba* L.—occ. ; locally dominant at N.-E. end of A.
- P. tremula* L.—r.
- **P. × canadensis* Moench—l. ; G.
- (*Salix fragilis* L.—Grange Road.)
- S. caprea* L.—r. ; A.
- S. cinerea* L.—f.
- **Rhododendron ponticum* L.—occ. ; self-sown in A and B.
- (*Calluna vulgaris* (L.) Hull—banks of the reservoir at the top of Rock Hill. Probably planted but the reservoir is over a century old and adjoined Sydenham Common.)
- Primula vulgaris* Huds. Reported by F. Rose as seen by him in Peckarman's Wood (B) in abundance about 1933.
- **Buddleja davidii* Franch—common in A and F.
- Fraxinus excelsior* L.—f. ; fine trees in A and B, ab. at S. end of G.
- **Syringa vulgaris* L.—r. ; A.
- Ligustrum vulgare* L.—r. ; A.
- **L. ovalifolium* Hassk.—frequent in A, sometimes 10 ft. tall.
- **Symphytum × uplandicum* Nyman—r. ; G, one large patch.
- Convolvulus arvensis* L.—r. ; E.
- Calystegia sepium* (L.) R.Br.—l.ab. ; A, G.
- **S. silvatica* (Kit.) Griseb.—r. ; A, in hedge.
- Atropa bella-donna* L.—v.r. ; A, one bush, birdsown.
- C *Solanum dulcamara* L.—occ. ; A, F.
- S. nigrum* L.—r. ; A, G.
- Verbascum thapsus* L.—r. ; G.
- **V. phlomoides* L.—r. ; A.
- Linaria vulgaris* Mill.—r. ; A.
- **Cymbalaria muralis* Gaertn., Mey., & Scherb.—r. ; A, in two places on ruins, B, on path.
- Scrophularia nodosa* L.—r. ; A, G.
- S. aquatica* L.—v.r. ; one patch in A.
- Digitalis purpurea* L.—r. ; A, on ruins, C.
- Veronica hederifolia* L.—v.l. ; A, by drive.
- **Acanthus mollis* L.—r. ; A, two patches.
- Stachys palustris* L.—r. ; A.
- S. sylvatica* L.—occ.
- (*Ballota nigra* L.—Grange Road.)
- Lamium album* L.—r. ; G.
- Teucrium scorodonia* L.—l. ; E, G.
- Plantago major* L.—c.
- C *P. lanceolata* L.—occ.
- Galium verum* L.—v.r. ; C.
- G. aparine* L.—r. ; A, in bramble scrub.
- Sambucus nigra* L.—occ. (Far less common, even in A, than it is on London waste ground generally).
- Viburnum opulus* L.—l.f. ; B.
- **Symphoricarpos rivularis* Suksd.—occ. ; A.
- C *Lonicera perichlymenum* L.—v.r. ; B, only one plant seen.
- Succisa pratensis* Moench—r. ; G.
- Senecio erucifolius* L.—occ.
- **S. squalidus* L.—f. ; A, G.
- S. viscosus* L.—v.r. ; A.
- S. vulgaris* L.—occ.
- C *Tussilago farfara* L.—occ., especially on ruins in A, and railway banks in G.
- **Solidago canadensis* L.—l.ab. ; A, E.
- **Aster novi-belgii* L.—ab. in A ; r. in B. At least three distinct forms of this very variable species occur, and other species may be represented.
- **Conyza canadensis* (L.) Cronq.—r. ; G.
- C (*Bellis perennis* L.—Grange Road.)
- Achillea millefolium* L.—occ.
- Matricaria matricarioides* (Less.) Porter—v.r. ; A, on track.
- C *Chrysanthemum leucanthemum* L.—l. ; A, G.
- Artemisia vulgaris* L.—c.
- (*Arctium minus* Bernh.—Grange Road.)
- Carduus acanthoides* L.—r. ; A, C.
- Cirsium vulgare* (Savi) Teh.—occ. ; A.
- C. palustre* (L.) Scop.—r. ; G.
- C. arvense* (L.) Scop.—l.ab.
- C *Centaurea nemoralis* Jord.—v.r. ; A.
- Lapsana communis* L.—f.
- Hypochoeris radicata* L.—f.
- Tragopogon pratensis* L.—l. ; A, by track.
- (*Lactuca serriola* L.—Grange Road.)
- Mycelis muralis* (L.) Dumort.—l.ab. ; A, near ruins ; B, by woodland track.
- Sonchus arvensis* L.—r. ; G.
- S. oleraceus* L.—occ.
- S. asper* (L.) Hill—r. ; A, C.

- Hieracium perpropinquum* (Zahn) Druce (det. P. D. Sell)—l. ; E.
H. umbellatum L.—r. ; G.
 **Crepis vesicaria* L. subsp. *taraxacifolia* (Thuill.) Thell.—l.f. ; A, G.
C. capillaris (L.) Wallr.—r. ; G.
Taraxacum officinale Weber—occ.
Convallaria majalis L.—v.r. ; B, near ruins of army hut.
 **Polygonatum* × *hybridum* Brügger—v.r. ; E, probably bird sown.
Endymion non-scriptus (L.) Garcke—abundant in woods ; B.
Juncus effusus L.—r. ; F.
J. articulatus L.—v.r. ; F, by pond on golf course.
Luzula pilosa (L.) Willd.—r. ; B, in two places.
L. forsteri (Sm.) DC.—r. ; B, in two places.
L. multiflora (Retz.) Lejeune—l.c. ; E.
Narcissus spp “ Daffodils ” are said to be plentiful in Peckarman’s Wood, but we saw no leaves.
 No doubt planted.
- C *Tamus communis* L.—occ.
Lemna minor L.—v.r. ; F, in two ponds.
Carex sylvatica Huds.—l. ; B, E, F.
C. pilulifera L.—l. ; E.
 **Arundinaria anceps* Mitford—l. ; A, competing with brambles, etc.
 **A. simonii* Riviere (?)—l. ; A, competing with brambles, etc.
 **Sasa senanensis* (Franch. & Sav.) Rehd.—l. ; A, competing with brambles, etc.
Glyceria declinata Bréb.—l.ab. ; F, in two ponds.
Festuca rubra L.—occ.
Lolium perenne L.—occ.
Catapodium rigidum (L.) C. E. Hubbard—v.r. ; A, on ruins of Wood Hall.
Poa annua L.—c.
P. nemoralis L.—c.
P. compressa L.—v.r. ; A, on ruined pavement by Wood Hall.
P. pratensis L.—r. ; E.
P. trivialis L.—f.
- C *Dactylis glomerata* L.—l. ; A, C.
 (*Melica uniflora* Retz.—Fountain’s Drive.)
Bromus sterilis L.—f.
Brachypodium sylvaticum (Huds.) Beauv.—v.r. ; A.
Agropyron repens (L.) Beauv.—l.ab. Several forms occur.
 (*Hordeum murinum* L.—Grange Road.)
Trisetum flavescens (L.) Beauv.—r. ; B.
 **Avena sativa* L.—v.r. ; A, by side of drive.
Arrhenatherum elatius (L.) Beauv.—l. ; A, C.
- C *Holcus lanatus* L.—c.
H. mollis L.—l.ab. in woods ; B, E.
Deschampsia caespitosa (L.) Beauv.—occ. ; A, B, C, F.
D. flexuosa (L.) Trin.—l.c. ; B, C, E.
Agrostis tenuis Sibth.—r. ; A, on ant hill, B, by railway.
A. stolonifera L.—occ.
Phleum pratense L.—occ.
Alopecurus pratensis L.—l. ; C.
Milium effusum L.—occ. ; B.
Anthoxanthum odoratum L.—occ. ; E.
 **Phalaris canariensis* L.—v.r. ; A, side of drive.

The Centenary Exhibition : The Naturalist's London

By R. C. VERNON, M.B.E.

FOR his presidential address delivered on December 2, 1947, Mr. L. G. Payne, F.Z.S., took as his subject "The Story of Our Society." In it he pointed out that the story had not been easy to piece together and clearly a lot of research was necessary before his interesting address could be given.

It is, perhaps, fitting that the story of the Society is, in fact, to be found in three presidential addresses; the address referred to above given by Mr. Payne, his address of the following year (1948) and the address delivered at the Centenary Meeting held at Church House, Westminster, on March 11, 1958, by Mr. C. P. Castell, B.Sc, F.G.S. An excellent account of the Society by various authors was also published in *The London Naturalist*, No. 37 for 1957.

These papers set down a record of 100 years of the naturalist's London, and it was in celebration of 100 years of work by a body of largely amateur naturalists that in 1958, the centenary year, an exhibition was organized which starting in north London in October finished in south-west London in December.

This short account of the exhibitions sets out to do no more than to make it easier for the members of the Society who may be celebrating the two-hundredth anniversary in 2058, to learn what their forebears did and what they placed on show as demonstrating the work of the Society one hundred years after its foundation.

An account of the exhibition would be incomplete without a brief note of the proposals which led up to it.

On March 1, 1957, the Council appointed a Committee to consider celebrations in the Society's centenary year. This Committee made recommendations, some of which were adopted and are referred to in the report of the Council published in this issue of *The London Naturalist*. Whilst the Committee was pursuing its task, an inquiry was received from Mr. N. E. Waites, the Borough Librarian of Stoke Newington, as to the possibility of an exhibition in the library in 1958. Full details were made available to the Committee about the facilities available, and the offer was immediately seen to be one worthy of the most careful consideration. The Council of the Metropolitan Borough of Stoke Newington through their Librarian offered to deal with publicity, pay lecturers' fees and to assist generously in every way with staffing. In addition, the Stoke Newington Council offered to sponsor an official opening ceremony and to deal with the invitations to and entertainment of guests.

Copies of the offer having been circulated to the Sections, it soon became clear that they would co-operate. It also became clear that the feeling was held, particularly by the Ornithology Section, that because of the work which would obviously be involved, the exhibits could with advantage be shown somewhere in Central London after the period during which they would be at Stoke Newington. It seemed that the Royal Exchange was the obvious place if the use of the court of this splendid building set in the heart of the historic City of London could be obtained.

In October, 1957, an approach was made to the Gresham Committee, in whom control of the court of the Royal Exchange is vested, and on December 13 permission was granted. On November 6 the Centenary Exhibition Committee, referred to hereafter as "the Committee," met for the first time with the President (Mr. C. P. Castell) in the chair, and with wide terms of reference from the Council available to this Committee it became clear that the exhibition was rapidly developing from an idea to a reality. This aim was furthered by seeking the approval of the Council of the Metropolitan Borough of Wandsworth through its Borough Librarian, Mr. E. V. Corbett, for the exhibition to be put on show in Earlsfield Library for a fortnight, and on January 22, 1958, approval was given to this proposal.

With three showings of the exhibition arranged, the Committee as can well be imagined dealt with a mass of detail.

It was most important to decide as early as possible the names of the distinguished people who should be invited to open the exhibition in each of the three places, and ultimately the Committee's labours were rewarded by their ability to publish the following settled programme:—

October 4 to October 25 at The Central Library, Stoke Newington Church Street, N.16, to be opened by The Honorary President, Professor Munro Fox, F.R.S., introduced by The President, C. P. Castell, B.Sc., F.G.S.

November 3 to November 15, at The Royal Exchange, E.C.3, to be opened by The Rt. Hon. Lord Hurcomb, G.C.B., K.B.E., introduced by Professor Munro Fox, F.R.S.

November 22 to December 6, at Earlsfield Public Library, Magdalen Road, to be opened by Eric Simms, D.F.C., M.A., F.Z.S., M.B.O.U., introduced by Professor Munro Fox, F.R.S.

Whilst all the administrative work was proceeding the Sections were shaping their ideas as to exhibits. At the Committee's first meeting on November 6, 1957, the broad outline of the exhibits was considered and Sections were requested to translate their proposals into firm requests for screen-space and cases.

A decision was taken early in the planning to mount all the exhibits on panels which would in turn be hung on screens. This seemed to be desirable, as in the three places where the exhibition was to be mounted there was every possibility that different vertical screens would be used. Events showed this to be a wise decision, which made the moves to the Royal Exchange and afterwards to the Earlsfield Library much easier than would otherwise have been the case.

Many abortive inquiries were pursued in an endeavour to secure museum cases to house specimens. This problem was ultimately solved by the making of twelve glass-topped cases to a simple design. These cases are now in the rooms at Eccleston Square and will doubtless prove useful in the future.

All the foregoing was important if the exhibitions were to be held, but the essential work was carried out by the Society's Sections in the preparation of the exhibits. As soon as the exhibition could be seen on a plan as a whole it was possible to agree with each Section the number of panels which would be available and, where appropriate, the number of cases required to house specimens.

In the event, the exhibition took the following general form, with minor differences as to actual material exhibited in each of the three places.

ARCHAEOLOGY

London being rich in Roman and Mediaeval remains, this Section took full advantage of the material made available during post-war rebuilding programmes, particularly in the City of London. One screen was devoted to photographs of traces of Roman and Mediaeval London uncovered by the builder's spade, whilst another showed photographs of the Mithras Temple in Walbrook and the wall and gateway in Silver Street. Other screens were devoted to St. Bartholomew The Great, Smithfield; a map of the Roman Roads in the London Area, and a series of photographs showing places of historical interest visited by the Section.

A screen which attracted a good deal of attention was a reconstructed section through an imaginary piece of ground showing the occupation layers from Roman times to the present day; actual specimens of pottery fragments, etc., being placed in the positions in which they would be encountered during excavation.

Examples of Roman, Mediaeval and 17th and 18th century pottery were shown in two glass cases.

BOTANY

The botanists took as one of their aims a demonstration of the wide range of plant life in the London Area and devoted two screens to this subject. A further two screens were allocated to interesting flowering plants in different parts of the area. One screen was devoted to the history of a plant particularly associated with and named after London: the London Rocket.

The remaining two of their seven screens were wisely directed to the aim of demonstrating the importance of compiling botanical records and the way this is done, and to showing how the Section in its indoor activities deals among other things with the exhibition and study of fresh material.

The Screen showing the recording of the plants of the London Area was particularly interesting in that specimens of recording cards were shown as actually used in the field.

ORNITHOLOGY

Probably most sections found the task of deciding what to exhibit one of selection rather than accumulation, and it was clear that this would be the case with the ornithologists. In the event, eight screens told a story of some years of scientific work and yet had an appeal to the person to whom birds, bird watching and recording is no speciality.

This appeal was engendered by the ornithologists' first screen, where a bird quiz set in the form of a gigantic question mark was built up of hundreds of bird pictures in colour. The pride with which visitors identified the pictures of the lesser-known birds was obvious to the exhibition stewards. This led naturally into the second screen which introduced the Section's activities.

Three screens were devoted to showing the different habitats frequented by birds in the London Area, varying from the heart of the City to the commons and other open spaces. Another screen was devoted to rare birds and migration, and yet another to a piece of research work, the starling enquiry of 1949-51.

Not unnaturally one screen referred to "The Birds of the London Area since 1900," the book written by members of the Society, all orni-

thologists (but many with other interests) and published by Collins in 1957 in the "New Naturalist" series. Finally, a series of exhibits showed aspects of bird-ringing in the London Area.

GEOLOGY

In six screens and eight cases associated with them, the Geology Section set out to demonstrate 300 million years of natural history beneath London.

The first two screens introduced the subject in relation to the study of natural history by means of maps and sections across London, together with brief accounts of local geology as applied to each place where the exhibition was held, an associated case showing specimens of rocks from boreholes.

The remaining four screens dealt with the Cretaceous, Eocene, Pleistocene and Recent Periods. In a case associated with each screen were shown the appropriate fossils or, in the Recent Period, flint implements and a cast of the skull of Swanscombe Man.

Great interest in the exhibition cases was displayed by the organized parties of school-children, many of the fossils on show being remarkably fine specimens.

It is appropriate here to refer to the collection of marble and serpentine made by Mr. R. E. Butler, the Chairman of the Section, to mark the centenary of the Society. This collection of more than 1,600 specimens from over 50 countries was exhibited in the Geological Museum, South Kensington, during part of the centenary year. A small part of the collection was shown in each place where the exhibition was staged, the specimens being chosen from among those types which have been used for decorative work in London. Quite apart from their scientific value, the natural beauty of the marbles and serpentines attracted great attention.

EPPING FOREST FIELD SECTION

Two screens showed the work of this Section, whose members live mostly in North-East London and which confines its work to outdoor meetings.

Photographs showed the wild life of Epping Forest and changes which have occurred in the vegetation.

Plaster casts of mammal footprints, and at Stoke Newington and the Royal Exchange a very attractive toadstool garden, were displayed on a table accompanying the screens.

ENTOMOLOGY

This Section can be regarded as the "founder members" section as it was the Haggerstone Entomological Society of 1858 which evolved into the London Natural History Society. A hundred years of useful work, including research of the utmost value in medicine, were commemorated by six cases of a representative selection of specimens, beautifully mounted and four screens illustrating the life histories of the insects shown.

ECOLOGY

As the catalogue published in connection with the exhibition said, "the Ecological Section seeks to discover the why and the wherefore in the balance of nature."

In work of this kind, co-operation with all other Sections is almost an essential. The first screen illustrated the type of work undertaken

generally by the Section, the following two being devoted to the Bookham Common Survey. The difficulty of crystallizing 17 years work in two screens can better be imagined than described, but in addition to a demonstration of the feeding habits of birds on the Common, it was possible to show changes which have taken place in the vegetation during the period of the Survey. Another screen illustrated the Headley Heath Survey which has been in being since 1951 and yet another was devoted to flowers of the City bombed sites. Not unnaturally, Londoners who remember the dark days of 1939-1945 were interested to learn that although few plants occurred in the area before the war, some 350 kinds were to be found 15 years later.

Associated with the Ecology exhibit were the two screens of the Mammal Group. One showed the results of an enquiry from 1953 to 1956 into the distribution of the grey squirrel; the other dealt with the mammalian prey of owls as revealed by bones and other remains found in owl pellets.

Other exhibits were a screen of prints and photographs showing some of the places visited by the Ramblers' Section and a colourful map of the Society's area showing the location of every meeting of the Society held during the centenary year.

Mention must also be made of the beautiful photographs taken by our Honorary Vice-President, Mr. Oliver G. Pike, Hon. F.R.P.S., now in the Society's possession, a selection of which were shown in all three places where the exhibition was held.

An essential part of any exhibition is a catalogue. With some assistance from Mrs. L. M. P. Small and the writer, the work of piecing together the lists of sectional exhibits into an informative whole was undertaken by the Society's Hon. Secretary, Mr. H. A. Craw. With time unavoidably restricted because of printing problems, he produced a catalogue which was widely distributed and commended.

It is also a very happy circumstance that a permanent record of the exhibition exists in the shape of a complete set of photographs in colour of all the exhibits, and of tape-recorded interviews made on tape at the Royal Exchange together with the opening speech made by Lord Hurcomb.

The beautiful colour photographs were all taken by Mr. B. L. J. Byerley, F.R.E.S. and the tape-recordings by his friend, Mr. T. Fenwick.

At a meeting held on March 23, 1959, an opportunity was afforded to the members of the Society to see these photographs and to hear the tape-recordings. At this meeting the audience, most of whom had seen the exhibition in one place or another, were impressed with the value of this record of the screens and cases: clearly as the years pass the value of these slides and tape-recordings will be immeasurable.

And the result ? It is admitted by all who have anything to do with publicity, exhibitions, displays or similar undertakings that the most difficult thing to measure is the impact made on the public by the particular undertaking.

Polls and audience research projects are complicated and expensive to organize, and achieve in the end only a reasonable approximation of the particular answer required.

These three exhibitions, although organized as a separate venture were in fact in step with other projects marking the Society's centenary year and which are referred to elsewhere. Mention must be made

particularly, however, of a "Fourth Leader" in *The Times* newspaper of Monday, November 3, 1958, which made reference to the opening ceremony by Lord Hurcomb at the Royal Exchange on that day, and to the description of the exhibition given on a B.B.C. evening programme, together with interviews recorded with some of the Section Chairmen. There were, of course, throughout the year, many references in various publications to the Society and its work and many specifically mentioned the exhibitions.

It is estimated that over 12,500 people saw the three showings of the exhibition screens and cases at one place or another. Members of the public visiting the exhibitions whilst at Stoke Newington numbered over 3,000, not including school parties. A series of evening lectures on natural history subjects which it was considered would be popular was sponsored by the Stoke Newington Borough Council.

The constables at the Royal Exchange have methods of estimating attendances as many exhibitions of one kind or another are held in the court of this building. Their admittedly conservative estimate of attendances amounted to 5,000 people.

The Librarian-in-Charge at Earlsfield Library, Wandsworth, Mr. F. G. Roberts, kindly maintained an hourly record of attendances whilst the exhibition was in his library. This record shows that 4,418 adults were actually counted whilst visiting the exhibition. In addition there were twelve organized visits from schools in Wandsworth.

Whilst it may seem invidious to mention any members of the Society in particular, for very many members contributed invaluable work, some over a long period, mention must be made of Mr. G. T. Messervy-Whiting who was wholly responsible for the lay-out of the exhibition at Stoke Newington, the first public showing. Illness prevented him from accepting responsibility for the arrangement of the exhibits at the Royal Exchange, and this task was willingly accepted by Mr. B. L. J. Byerley whose lay-out invited admiration. The work of the writer, who arranged the exhibits at Earlsfield Library, was made considerably easier because of the good work done by his fellow-members mentioned above.

The Society owes much to many people who, whilst not members, gave freely of advice and help. They are too numerous to mention by name, but in particular the writer would like to record his gratitude to his colleagues in the London Divisions of the Civil Defence Corps who were always willing to give the benefit of their wide contacts throughout the Metropolis, and who frequently gave valuable practical help.

Collection of Marble and Serpentine Specimens

(Final Report)

By R. E. BUTLER

SINCE the report published in *The London Naturalist* of 1958 many further specimens have been added to the collection which now contains 1,660 pieces covering over 1,400 different varieties. Fifty-five countries are represented and among new ones added during the year are Costa Rica, Finland, Indonesia, the Lebanon and Pakistan. Some other countries have had their representation considerably expanded. Italy has most specimens with 334 and France is second with 231. A very fine set from Mexico has more than doubled that country's representation. Little if any further collecting remains to be done although there is still the West Indian island of Puerto Rico where the first marble quarry was only opened during the autumn of 1958. The arrival of a promised set of specimens from that new source of supply is awaited with great interest. Hopes are still held out, however, of getting something from Venezuela, but the South American continent is still the one and only disappointing part of the collection. Lack of information from this part of the world has also added to the difficulty of obtaining samples. Brazil has, however, provided what is the most remarkable marble in the collection, the Sao Paulo marble which depicts "a landscape showing the sun setting behind a forest of trees." The previous report mentioned the difficulty of obtaining specimens from Indonesia. The kind interest shown by Dr. J. McDivitt, Professor of Geology at the University of Indonesia, has enabled this difficulty to be overcome. As a token of appreciation for this help some specimens of British marbles have been sent out to Bandung, the University centre. As a matter of interest it might be mentioned that the marbles of Java are of Miocene age and were therefore formed at the time when the great Alpine folding processes were actually shaping the London Basin.

The collection has been exhibited on a number of occasions. The main display was staged during July and August at the Geological Museum, South Kensington, and was organized by Miss M. Morris of the Museum staff. Some 400 specimens formed part of the Society's centenary exhibition at the Royal Exchange whilst earlier in the year there was a display at which many commercial representatives were the guests of the Geological Section.

Arrangements have been made to house the whole collection at a later date in the Geological Museum, where it is hoped that it will be of considerable scientific and reference value besides providing the Society with a useful piece of permanent publicity.

Lower Wood, Claygate, Surrey

THROUGH the kindness of Mr. Norman Jones, the owner of Lower Wood, the Society has been fortunate in securing the exclusive use of this 21-acre wood as a sanctuary and field studies centre.

The wood consists of some fine oak stands as well as of typical mixed woodland. It is bounded on three sides by open fields and on the fourth side by Woodstock Lane leading to the Kingston By-pass.

It is anticipated that in addition to the creation of a sanctuary a variety of activities and studies by the Botanical, Entomological, Ecological and Ornithological Sections will be initiated in Lower Wood. Such activities will undoubtedly necessitate the placing or erection of nest-boxes, bird-ringing traps, mammal traps, photographic hides and other apparatus.

It has therefore been decided that casual access to the wood by members would be undesirable and only a limited number of permits will be issued to prevent undue disturbance of the various activities in progress.

Members interested in participating in any of the various schemes of work to be undertaken in Lower Wood should, in the first instance, communicate with their Sectional Secretary.

General enquiries relating to Lower Wood should be addressed to the Secretary of the Lower Wood Management Committee—Mr. P. Hayman, 53 Eastmont Road, Hinchley Wood, Esher, Surrey.

Books

Epping Forest by Alfred Quist, F.L.A.S., Superintendent of Epping Forest.

A Corporation of London publication, 1958, 3s. 6d.

Many members of our Society hold, quite rightly, strong views on conservation but not all of them can agree on the how, why and when of the business. And when discussion on conservation reaches Epping Forest the rival protagonists may get heated—then is the time to turn to authoritative opinion. Let it be said at once how interesting this little book will be to those who have watched the activities of Mr. Quist over the last few years; to understand his aims, so clearly explained, is to appreciate his desire to serve his many masters—London, its Corporation and its people, the surviving commons and their grazing beasts—and, not least, the Fallow Deer and Hornbeams and those naturalists who wish to study them.

Into forty pages we find compressed a brief history of the use of the forest and of the evolution of its present administration under the Act of 1878. Two sections cover the contrasting responsibilities of the conservators—the preservation of its natural aspect while maintaining its recreational value to so large a populace.

A section on “Maps and Notes” follows giving information on the more important localities and finally “Miscellaneous Notes” includes lists of bus routes and similar mundane matters. The dozen or so photographs also redound much credit to the author and well illustrate all the main points of the book. The maps support the text but here too much has been sacrificed in an attempt to achieve artistic effect; not even the key map has a scale and some landmarks, including High Beach Church, have been left unnamed.

We congratulate the author on this presentation of a "suburban forester's ecology" and we hope that it is a precursor to a more fully documented book in which, amongst others, the activities of our Society may find mention and an account of Mr. Quist's work on planned regeneration will be more fully expounded.

This is a book that each one of our members should make a point of possessing and studying.

J.F.S.

Spiders, Scorpions, Centipedes and Mites, by J. L. Cloudsley-Thompson, M.A., Ph.D., F.R.E.S., F.L.S. Pergamon Press, 1958. Pp. xiv, 228, illust., $8\frac{3}{4} \times 5\frac{3}{4}$. Price 50s.

We are very fortunate in having among the members of our Society the author of this recent book dealing with the natural history of the Arachnida, Myriapoda and Isopoda—groups which have received scant attention in comparison with the Insecta. In most cases a chapter is devoted to each order, and within this framework sections are allotted to classification and distribution, general behaviour, food and feeding habits, enemies, mating, and reproduction and life-cycle. Each chapter concludes with bibliographies on the identification and biology of the particular group. The main text is followed by a short epilogue in which the water-regulatory mechanisms of the animals are briefly reviewed. A useful glossary of scientific terms is appended. Dr. Cloudsley-Thompson has travelled widely and has had the opportunity of observing exotic animals in their natural habitats. Many of his observations are recorded here for the first time and make fascinating reading. The chapter on mites and ticks is rather short, and this, perhaps, is a regrettable feature in view of the abundance and economic importance of these animals. Indeed, the Acarina are now receiving the increasing attention of ecologists and taxonomists. The entomologist or general naturalist with no previous knowledge of the non-insectan terrestrial Arthropoda should find his curiosity aroused sufficiently to investigate some of the many problems and mysteries which abound. Those of us who know Dr. Cloudsley-Thompson will, I am sure, congratulate him on writing such an interesting book, and wish him every success in the future, both as Lecturer in Zoology at the University of London, and as a field naturalist.

K.H.H.

The Ark in our Midst, by R. S. R. Fitter, pp. 320, 8 plates. Collins, 1959, 18s.

Almost a quarter of the land mammals in the British Isles "have been introduced, either accidentally or deliberately, by man over the past two thousand years, more than half of them within the past hundred years."

Mr. Fitter surveys these introductions, and those of other vertebrate groups, at first generally and then in more detail, species by species. The reasons for their success or failure, their possible effects on our native fauna, adaptation to habitat and the means of establishment are dealt with. However superficially a new environment resembles the original, the ability of a species to establish itself appears to be controlled by several interrelated factors. Climate is of the most obvious importance; many species cannot survive our cold damp winters; others, especially reptiles and amphibians, are able to breed only in the warmest summers. These factors, and others such as predators, cover, food, and adaptability of the species in general, are all discussed in the Introduction.

The most interesting chapters in this book are the Introduction and the one entitled "The Acclimatizers." The latter summarizes briefly the history of the importation of foreign animals and their subsequent "enlargement." The fanatical persistence of the members of the Acclimatization Society in the middle of the last century is impressive. Perhaps if they had been as successful as they hoped, we might now be seeing "troops of elands gracefully galloping over our green sward, and herds of koodoos and other representatives of the antelope family which are so numerous in Africa enjoying their existence in English Parks !"

London itself has been the scene of many attempts to introduce exotic species. In 1905 Frank Finn released thirty Pekin robins in St. James's Park, but they survived only a few months. The same person was responsible for the release of several other species of cage-birds in the London Parks. Mention is made of Miss T. Gompertz's pioneer study of the London feral pigeon, the only domesticated bird to have gone feral to any extent. The successful colonization of the Home Counties by grey squirrels was the direct outcome of their large-scale introduction into Regent's Park from 1905-07; it is surprising therefore that Dr. G. Beven's important paper on the distribution of the grey squirrel in the London Area receives no mention. A. C. Wheeler's recent study of London fishes is mentioned with reference to goldfish that have reverted to their natural colour having been found in London waters.

All this makes entertaining reading. Unfortunately the later and most valuable chapters are overburdened with dates and details. They are further complicated by the need to separate the deer and rodents under various headings such as "Introduced aliens" and "Transplanted natives," thus further confusing the reader. The book is well illustrated with photographs and two pages of line-drawings. It is refreshing to see one or two new photographs—especially pleasing are those of grey squirrel and edible dormouse—but for the most part, particularly those of mammals, they are the same hardy annuals.

R.E.T.

Adventure of the Air, by James Fisher, pp. 72, many illustrations. Rathbone Books, 1959. 17s. 6d.

In this slim book there is a great mass of information packed into a small space, and told in simple terms. Its unusual and colourful illustrations make it a book which is at first sight attractive to browse through, and it turns out to be a store of knowledge and understanding of all the ways of the air from the very formation of atmosphere up to the artificial satellites.

S.M.P.

The following books have also been added to the Library:

- Lord Avebury, *Scenery of England* (1904).
- F. Balfour Browne, *British Water Beetles*.
- Ruth Bartlett, *Insect Engineers* (1958).
- S. Beaufoy, *Butterfly Lives* (1947).
- Jukes Browne, *Handbook of Physical Geology* (1892).
- Clarke Kennedy, *Birds of Berks. and Bucks.* (1868).
- J. E. Dandy, *List of British Vascular Plants* (1958).
- F. H. Edwards, *The Wealden District* (1948).
- W. C. O. Hill, *Man as an Animal*.

- Sir J. Huxley, *The Story of Evolution* (1958).
A. Jack, *Feathered Wings* (1953).
P. C. Kennedy, *Birds of Ireland* (1954).
D. H. Kent and others, *British Herbaria* (1957).
R. M. Lockley, *The Bird Lover's Bedside Book*.
Linnaeus, *Species Plantarum* (1753) Vol. 1 (1957).
E. Marsden-Jones and W. B. Turnill, *Bladder Campions* (1957).
G. Mathot, *Les Papillons* (1958).
Maxwell Knight, *Taming and Handling Animals*.
D. McClintock, *Supplement to Pocket Guide to Wild Flowers* (1957).
T. H. Savory, *The Spider's Web* (1952).
P. Scott, *Key to the Wild Fowl of the World* (1949).
E. Simms, *Voices of the Wild* (1958).
M. N. Stephens, *The Otter Report* (1957).
F. J. Taylor Page, *A Field Guide to British Deer* (1957).
H. Thompson, *Alpine Plants in Europe* (1911)
A. Thorburn, *British Birds* (1925) Vols. 1-4.
N. F. Ticehurst, *The Mute Swan in England* (1957).
E. L. Turner and F. H. Bahr, *Home Life of Marsh Birds* (1957).
G. W. Tyrell, *Volcanoes* (1931).
A. D. Webster, *British Orchids* (1898).
Zoological Record, *Aves* (1957).
Ardea (1956).
The Auk (1956).
British Birds (1957).
Journal of Animal Ecology, Vols. 24-25.
Journal of Ecology, Vol. 43.
Transactions of Society for British Entomology 1951-57, Vols. 11-12.
London Naturalist 1919-33.
Nature Conservancy Report 1957.
and many County and Local Societies' Reports.

Obituary

W. C. Cocksedge

Walter Clarke Cocksedge, who was a staunch member and a diligent official of the L.N.H.S. since 1925, died on May 24, 1958, in his 76th year.

Born at Herne Hill, he was educated at Alleyn's School, Dulwich and then joined a group of Argentine Railways, with whom he had a long and successful career.

From early youth, he read widely and was an enthusiastic observer of everything about him. Little seems to have escaped his interest, from the prosaic details of every day change to the treasures that he found hidden within the walls of many London churches, museums and galleries. With his brother and with his life-long friend, J. E. S. Dallas, he developed a lasting love of the countryside, exploring the untouched country beyond Croydon.

By nature a little reserved, he nevertheless had a keen sense of humour—his prodigious memory and clarity of exposition whether in talking or writing, coupled with a real delight in imparting his knowledge to others, were attributes soon recognized by the Archaeological Section, who elected him Chairman in 1929. He held this position for 25 years, during which time the section flourished and expanded, fostered by the careful organization and the untiring efforts of him and his wife, and many of us will recall with pleasure the numerous excursions they conducted. His frequent lectures and articles in the *London Naturalist* show his love for our English heritage.

He was a member of Council for thirteen years, and Vice-President for nine, and during all these years attended the meetings with conscientious regularity.

R.D.

Cocksedge was an active supporter of the Geology Section, serving on its Committee from 1937 to 1953. One of his last services to the Society was as an "elder statesman" member of a small sub-committee appointed by Council for the revision of the Rules in 1957.

He was a frequent contributor to the *London Naturalist*. His first paper, "Some London Trade Signs," appeared in 1931 and his tenth and last in 1958, when notes on life in the City at the turn of the Century when he was a junior clerk appeared under the title "Some Reminiscences of the City." His contributions were always welcomed by the Editors and doubtless by many non-specialist members as enjoyable and readable interludes in an otherwise rather arid mass of technical papers.

He attended Council meetings until within a month or so of his death, news of which, owing to the serious illness of his widow, unfortunately failed to reach members of the Society until after the Annual General Meeting in December, 1958, when he was elected to a posthumous Honorary Membership.

C.P.C.

Official Reports for 1958

Curator's Report

Botanical Section

There have been no additions to the herbarium this year.

Ecological Section

Nothing to report.

Entomological Section

The entomological collection has had very few additions this year, but work has continued on cleaning up the cabinets. Most of the poor-condition specimens of Lepidoptera (which had been attacked by mould and pests) have been disposed of and rearrangement completed. One of the small cabinets has had the drawers cleaned and whitened. Six of these drawers have been used for the Centenary Exhibition to illustrate Lepidoptera, Coleoptera, Hymenoptera, Hemiptera, Diptera, and other orders. These will be kept as they are and will be useful as an introduction to entomology for new members. The Entomological Curator would welcome specimens of all orders, except Lepidoptera, and a store-box will be placed on top of the Diptera cabinet to receive any donations.

Geological Section

A collection of building stone has been presented to the Section by the South Western Stone Company of Vauxhall. This collection illustrates the types of stone being used in London at the present time.

Ornithological Section

During the year the remaining skins of large birds—geese, skuas, and gulls, which had been stored at the British Museum (Natural History), have been brought to Eccleston Square, where they are now incorporated in the Collections. Mr. Oliver G. Pike, one of our Honorary Vice-Presidents, has presented us with a fine collection of 78 of his own mounted photographs. Of these, 49 are of ornithological interest and comprise briefly the following: a set of the British geese, petrels, grebes, twelve British ducks, Kestrel, Merlin, Kite, Nightjar, Stone Curlew, Bittern, warblers, and several waders. Twenty-five are of mammals, and the remaining four are of grass-snake, perch, parasol mushroom, and diatoms. Several of these photographs have been used at the Centenary Exhibition. Another addition to the photograph collection is a close-up of feral pigeons in Trafalgar Square. There have been no additions to either the skin or egg collections this year.

A considerable number of new members and their friends have visited the Collections during 1958, when they have been open on all Library and Collections evenings and also during informal meetings.

K. H. HYATT, *Curator*.

Statement of Accounts

GENERAL

1957				Receipts						
£	s.	d.			£	s.	d.	£	s.	d.
1,224	15	3	Subscriptions—Current	...	1,293	5	9			
21	7	6	Arrears	...	14	12	6			
34	8	6	Advance	...	46	7	6			
40	10	0	Entrance Fees	...	66	0	0			
1,321	1	3						1,420	5	9
50	0	0	Life Membership	...				—	—	—
—	—	—	President's Fund	...				176	11	10
29	2	0	Donations	...				—	—	—
1	10	0	Interest—P.O. Account	...				1	7	11
2	12	6	£75 War	...				2	12	6
5	8	0	£180 Savings	...				5	8	0
21	16	2	Deposit Account	...				24	19	5
3	0	0	Rents	...				5	2	0
—	—	—	Sundries	...				6	3	
55	12	3	Birds of London Area	...				—	—	—
—	—	—	Centenary Film Show	...				106	10	0
—	—	—	Trans. from Christmas Card Account	...				7	1	6
2	10	9	Balance in hand 3rd October, 1957	...				31	13	0
			Deficit 31st October, 1958	...				146	6	7
								£1,928	4	9

PUBLICATIONS

58	5	1	Sales of Publications	...				86	7	8
40	0	0	Grant Royal Society...	...				50	0	0
4	4	0	Adverts. to <i>L.B.R.</i> 1957	...				2	2	0
—	—	—	Transferred from Legacy Account	...				93	7	6
695	6	10	Transferred from General Account	...				1,011	1	9

£1,242 18 11

CHRISTMAS CARD

52	16	3	Sale of cards November-December 1957	...				47	16	11
15	0	0	Sale of Cards October, 1958	...				9	6	4

£57 3 3

Audited and found correct.
12th February, 1959

A. W. JONES, *Hon. Auditor.*
H. L. CAMPLIN, *Hon. Auditor.*
V. F. HANCOCK, *Hon. Treasurer.*

Year Ending October 31, 1959

ACCOUNT

1957			Payments						
£	s.	d.					£	s.	d.
153	7	0	Hire of rooms and halls with gratuities	...	...	...	164	15	0
78	5	3	25 Eccleston Square, Rent and upkeep	...	...	...	70	7	9
40	0	0	Library and collections	...	...	...	26	15	9
101	19	9	Printing and Stationery	...	...	...	84	4	10
23	14	0	Printing revised rules	...	...	...	—	—	—
120	0	0	General Secretary's Honorarium and Expenses	...	...	...	150	16	7
23	6	8	General Secretary's Telephone	...	...	...	27	5	1
46	1	7	General Secretary's Postages	...	...	...	52	10	10
4	3	6	Insurance	...	...	...	5	5	6
13	14	0	Subscriptions to other Societies	...	...	...	19	3	0
75	19	8	Sectional and Group Grants	...	...	...	70	3	9
6	5	8	Sundries	...	...	...	7	0	3
28	16	0	Centenary Film Show	...	...	...	101	16	6
—	—	—	Centenary Exhibition	...	...	...	136	18	2
50	0	0	To Life Composition Account	...	...	...	—	—	—
695	6	10	Grant to Publications Account	...	...	...	1,011	1	9

£1,928 4 9

ACCOUNT

134	15	3	Programme	...	...	...	...	...	166	10	0
			London Naturalist 1957	...	...	...	...	...	14	4	8
436	16	3	„ „ 1958	...	...	...	...	...	657	16	6
200	18	8	L.B.R. 1957 ... cost	...	...	254	2	9			
			Less: Reserve	...	...	220	0	0			
									34	2	9
18	18	0	Addressing and wrapping	...	...	...	...	...	20	0	3
35	1	9	Postages	...	...	...	...	...	75	4	9
			L.B.R. 1958—Reserve for printing			240	0	0			
			Reserve for postage			35	0	0			
									275	0	0

£1,242 18 11

ACCOUNT

55	15	11	Cost cards 1957	...	...	46	3	5			
			Less: Reserve	...	...	30	0	0			
									16	3	5
30	0	0	Cost Reserve 1958	...	...	...	...	...	33	18	4
—	—	—	To General Account...	...	...	...	...	...	7	1	6
									£57	3	3

On transfer of £93 7s. 6d. to Publications Account, the Legacies Account is closed while the Reserve and Life Composition Accounts remain at £75 and £400 respectively.

Report of Curator for Lantern Slides

During 1958, there have been no additions to the Society's collection of standard size lantern slides.

Thanks are due to Mr. Dent for his gift to the Society of a projector and screen; slides can now be seen to better advantage at Eccleston Square.

H. W. PAYTON, *Curator*.

Librarian's Report

The attendance at the Library has shown a decrease, due partly no doubt to the Bus Strike and bad weather. The numbers were 159 compared with 192 in the previous year, whilst the number of books borrowed decreased from 257 to 203.

As usual the Ornithological Section provided the most borrowers, and more borrowers from other Sections would be welcome.

Some 169 new books and pamphlets have been added to the Library during the year, some of which have been presented by members, for which we are grateful.

A comprehensive alphabetical list by Authors has been prepared by Mr. Bancroft.

In conclusion, I should like to thank the Sectional Librarians and members of the Library Rota for their work in the library and attendance at the fortnightly meetings.

J. B. FOSTER, *Librarian*.

Sectional Reports

Archaeological Section

During the year the Section has revived, and there is now a keen group working on the conjectured courses of Roman roads in the London area. The Field Meetings had varied archaeological, architectural and antiquarian interests. Visits to City churches which have been restored, namely All Hallows, Barking, The Temple, and St. Brides were of great interest and well attended. A tour of Bow and Bromley district led by G. F. Walsh and another around the Strand and Adelphi taken by Miss Darlington showed members many noteworthy buildings and historic houses, often tucked away in areas rapidly changing owing to redevelopment. In July, an evening walk round Blackheath and Greenwich, led by Miss E. Kiddie, enabled the party to see many houses built during the 17th to 19th Century which clearly showed the development in styles during this period.

A growing interest in practical Archaeology has been noticed; S. J. Collins's informal talk on methods and demonstration of suitable tools for excavation was followed by visits to sites at Northolt, Lesnes Abbey and Verulamium to see work in progress. The first dig by members in conjunction with Merton and Morden Historical Society was in early October at Morden Park on the course of Stane Street.

Indoor meetings included a well illustrated lecture on Spanish Cathedrals by J. Harvey, and the history of Southwark Cathedral from the 12th century foundation to the restoration and rebuilding of the nave in the 19th century told by Miss Darlington after the A.G.M. in November.

The Section's exhibit of photographs, map, pottery and model of occupation layers at the Centenary Exhibition was favourably commented upon.

All members are welcome to the meetings of the Archaeology section, especially those who are willing to tackle the heavy clay at excavations; further details of these are available from the secretary.

ELIZABETH WILSON, *Secretary*.

Botanical Section

Again we are able to announce an increase of members during the year, the total now being 524. Though well attended, the meetings do not show quite the same increase, the indoor average being 43 and the outdoor approximately 16. Sectional activity has been well maintained, however, with a greater number of meetings held, and a full share of the work in the staging of the Centenary Exhibition.

In the lectures this year we have attempted to supply something of interest for both the expert and the all-rounder. We have heard Mr. R. D. Meikle on "*Viola tricolor*," Dr. T. D. V. Swinscow on "Lichens," and Mrs. Y. Butler on "Seaweeds." Our photographer members Mr. W. H. Spreadbury and Mr. R. F. Cossor have given evenings of excellent slides, and Mr. E. W. Groves a most interesting account of his visit to Finnish Lapland with the British Schools Exploring Society. Also, to mark the L.N.H.S. Centenary, our recorder, Mr. J. E. Lousley has lectured on "Changes in the London Flora over the past 100 years."

The premises at Eccleston Square have again been used for a number of informal meetings, and it is felt that there is scope for the extension of this type of activity. It is known that several members have good 35mm. photographic slides, and one suggestion is that projection evenings should be arranged, on which these can be shown.

The Botanical exhibition meeting this year was somewhat curtailed by its falling on the same date as an important Special General Meeting, but the usual interest was maintained.

Our recorder for flowering plants reports continued activity by members, but so far not enough work is being done on Bryophytes. In view of the proposal to publish a handlist of Bryophytes, members are asked to make a collection, or a list of those to be found in their own neighbourhood. Incidentally the collecting of mosses is very simple, and our bryophyte recorder would be pleased to look over any collections sent to him.

The curator reports that two collections of London bryophytes have been presented to the society by Mr. R. A. Boniface. These will be available to members at Eccleston Square, and should prove useful in checking identifications.

It has been suggested that the section should keep a record of "Ancient Trees" of the London area. Mrs. Welch has agreed to keep such a list, and any information should be sent to her.

The success of the Centenary Exhibition is now history, and our thanks are due to the committee members who put in so much hard work to prepare and erect the botanical screens: especially to Mr. T. G. Collett who was present at the erection and dismantling at each of the three halls, to the members who supplied fresh material for the tables, and to those who acted as wardens during the busy periods.

Work has continued on the recording of plants for the B.S.B.I. Maps Scheme. This has been the final year for the present series of records, and we are grateful to all who have taken part.

Our Chairman for next year is Mr. J. E. Lousley, and on behalf of all members we extend to him a warm welcome. He has, of course, given the benefit of his experience in committee for many years, and we trust that he will find his new duties more pleasurable than onerous.

E. B. BANGERTER, *Chairman*. F. E. WRIGHTON, *Secretary*.

Ecological Section

The Surveys

Ecology means the relation of plants and animals to their environment and to each other. The Section, therefore, encourages members interested in different branches of natural history to work together on special problems. To facilitate this surveys of selected areas have been organized and these surveys are an important part of the Section's programme. Much of the work done is devoted to finding out what plants and animals are present and the habitats they occupy. Further studies may then reveal some of the relationships shown by the species to their surroundings. The two main surveys at present in existence are at Bookham Common (wood and grass land on London clay) and at Devilsden Wood and nearby downs at Coulsdon on the chalk. They are both visited at least once a month. Members work at their own special interests but meet at lunch and tea, so that their findings may be discussed and help obtained in the identification of specimens. There is still much work to be done and more support for these surveys is needed. Any member could help by studying his own particular group in one or more habitats or perhaps the distribution of a single species or even the collection of casual records. Repeated visits to a single area emphasize the various habitats occupied by species, and may, for example, be invaluable to a botanist who will see the same plants in different stages during the year, and will learn to identify flowering plants when in leaf or merely dead stems. Mr. C. P. Castell again led the annual visit to Headley Heath to examine the regeneration of the heath from war-time tank manoeuvres.

Nature Conservation

The Committee continues to study how best to help safeguard the interesting habitats and their fauna and flora in the London Area and would welcome notes on the natural history of any of the recommended conservation areas or other suitable areas.

During the year there was a useful informal discussion on Nature Conservation.

Mammals

The Mammal Study Group arranged lectures on "The Wild Rat" by Dr. J. F. D. Frazer and "The Grey Seal" by Dr. K. W. Backhouse. Informal discussions were held at Eccleston Square on the analysis of pellets of birds of prey, local mammal surveys and Badgers. Field meetings were held at Richmond Park to see Red and Fallow Deer, Hampstead Heath for Edible Frogs, and Havering-atte-Bower to examine a Badger sett and live-trapped Bank Voles.

General

Professor F. W. Jane gave a talk on "The Woodland as a Community" in which he discussed the varying types of woodland in Britain and its associated flora, and Mr. N. M. Wace spoke of the flora and fauna of the remote uninhabited island in the South Atlantic known as Gonzalo Alvarez.

One of the aims of the Ecological Section has always been to cater for interests not covered by other sections and during the year a talk was given by Mr. S. P. Dance on "British Land and Freshwater Shells."

G. BEVEN, *Chairman*. A. W. JONES, *Secretary*.

Entomological Section

Over the years, the policy of the section has been to encourage members to present papers and lectures reporting on their studies in their particular branch of entomology. Also non-members, experts in their own field, have given lectures bringing fresh ideas, new methods of study, reporting on the latest developments in our science and delighting us with accounts of their activities when collecting in other parts of these islands or elsewhere in the world.

The indoor meetings held during the past year have continued in this manner but the changing location of the meeting places may have caused the small drop in the average attendance. Exhibits, though still varied, have not been so prominent as of recent years. This is regretted, for the exhibition and discussion of specimens should form an important part in our programme.

Our lecturers were:—N. E. Hickin, Ph.D., B.Sc., F.R.E.S. on "Caddis Flies and Crocodiles," J. D. Carthy, M.A., Ph.D., F.R.E.S. on "Some Studies of Ants and Their Habits," T. R. E. Southwood, B.Sc., Ph.D., F.R.E.S. on "An Introduction to the Land and Water Bugs—Heteroptera," and the Baron de Worms Ph.D., M.A., F.R.E.S. on "A Lepidopterist's Visits to Canada and the Congo." The discussions held at the informal meetings included "The Making of Entomological Illustrations" opened by Mr. K. H. Hyatt, "How and When to Specialize," "Ideas for Field Work," "County Lists," "Entomological Literature," and "Starting to Study Spiders" opened by Mr. A. E. Le Gros.

The July meeting was again devoted to exhibits, and at a meeting in May a fine collection of photographs as lantern slides and colour transparencies was shown by several members. Most of them were unique and between them covered most orders of insects. They varied from serious life-history studies to informal "snaps" of insects and exhibited the development in techniques over a half century of photography. At the annual meeting colour and sound films lent by the Petroleum Films Bureau were shown entitled "The Rival World," "The Red Spider" and "The Ruthless One."

Although attendances fluctuated and were hindered by weather conditions, the programme of field meetings was successfully completed. Localities visited were:—Bookham Common, Boxhill, Brentwood, Cheshunt, Coulsdon, Esher Common, Farningham, Horsley, the New Forest, Oxshott Heath, Watford. The visit to Horsley on May 18 enabled many to see *Hamearis lucina* L., the Duke of Burgundy Fritillary. At Boxhill on July 19, the leader Mr. R. W. J. Uffen found the first

female of *Rhagio strigosa* Mg. (Dipt., Rhagionidae) to be taken in this country. The visit to the New Forest in September was particularly successful. Besides seeing the blue Marsh Gentians and other interesting plants identified by the several botanists with the party, a number of uncommon insects were found including the dragonfly *Orthetrum coerulescens* F., the cockroach *Ectobius panzeri* Stephens, the wood cricket *Nemobius sylvestris* F. and the grasshoppers *Metrioptera brachyptera* L., *Conocephalus dorsalis* Latr., *Stethophyma grossum* L., *Omocestus rufipes* Zett.

There has again been a rise in the section's membership with 81 new members joining to bring the total to 348.

The section is grateful to the excellent work of Mr. B. L. J. Byerley, F.R.E.S. and his helpers who put on show the section's exhibit at the three Centenary Exhibitions.

C. G. M. DE WORMS, *Chairman*. L. PARMENTER, *Secretary*.

Epping Forest Field Section

This section has, as usual, concentrated its activities on field meetings that cover the many branches of natural history, in a wide area to the north east of London. The terrain covered varies so widely that there is always something fresh and of great interest to be discovered or seen. The officials of the section and members have co-operated so successfully that it is often difficult to fit in all the suggested routes. Our thanks are due to all those keen and kindly members who have made the field meetings so interesting and enjoyable, and to the two retiring members of the committee, Mrs. Small and Mr. Bancroft, for all the help and advice they have given us.

The one indoor meeting was the A.G.M., when a talk on Pond Life in Epping Forest, illustrated by slides, was given by the Chairman, Mr. A. G. Leutscher.

J. JONES, *Secretary*.

Geological Section

To the committee and officers in particular, the biggest concern and activity during the year has been devoted to our part in the Society's Centenary Exhibition. The exhibit presented several unanticipated problems. One obstacle to be overcome was the desire on our part to show a 300-million year history of the London area without including fossils and rocks taken from quarries outside the Society's twenty-mile radius. Since the older rocks under London are covered by a considerable thickness of Tertiary and Cretaceous deposits, this did not seem possible. A suggestion, however, by our exhibit organizer, Miss Enid Wheeler, that we could perhaps include material from deep borings was taken up with the result that Old Red Sandstone taken from 1,300 feet below Neasden and Jurassic rocks from the Warlingham borehole were on view. In addition the glaciers of the past have deposited many fine erratics of older rocks within the Society's area and this provided us with additional means of overcoming the problem.

The Easter field meeting this year was to Lyme Regis and was under the experienced leadership of Mr. B. Ainsley, F.G.S. The Dorset coast is well known for its geology and is rich in fossils. Ammonites were found in abundance by the twenty members who attended but no one found any substantial remains of an Ichthyosaurus or a Plesiosaurus, the fossil

reptiles that made Mary Anning and Lyme Regis famous to the geologist. The weather was rather unkind to us throughout the meeting and all who were present will no doubt remember the Good Friday when the descent of the cliffs at Charmouth was made in what may justly be called a snow blizzard. The weather improved a little for the remaining days when the Lower Lias was seen around Lyme Regis and on the Monday when a coach was taken to see the Cretaceous rocks at Seaton and Beer.

An outstanding meeting was by coach to the Isle of Sheppey when Mr. G. F. Elliot and Mr. J. F. Wyley acted as joint leaders. On the island at Warden Point the London Clay is 518 ft. thick and provides unlimited opportunities for the collection of fossils. The fact that the Section is not entirely concerned with the collection of fossils was illustrated by two very well supported meetings to the Reigate and Hindhead districts of the Weald, the leaders being respectively Dr. J. M. Hancock and Dr. F. A. Middlemiss, who dealt mainly with the geomorphology relating the scenery to the geology. As the total walking distance on these meetings was over 15 miles quite a large track of country was covered and the excellent views from vantage points covered a large part of the Weald.

A mid-week field meeting held a few miles from the City deserves mention. It was to Hampstead Heath with Mr. Butler as guide to trace the sources of two of London's smaller rivers before they commence their descent beneath London via pipes to the Thames. About 14 members turned up for this meeting and such support is encouraging for an evening outdoor meeting during the summer.

Altogether some thirteen field meetings were held. This figure was almost equalled by the number of museum demonstrations and visits to places of special geological interest. Perhaps this Section may make claim to the record of six museum demonstrations in twelve months! The Geological Survey was the venue for four of these and the Natural History Museum the others. A source of satisfaction to us was the exhibition of the Society's marble collection in the Geological Museum for two months as a special display during the International Zoological Congress.

The indoor meetings covered, as usual, a wide field. Some films from the Petroleum Films Bureau illustrated the patient search for oil in many of the exotic and as yet untroubled parts of the world. The geology of two very contrasting areas were the subjects chosen by two speakers, Dr. A. E. Mourant speaking about Jersey and Dr. R. J. Jones dealing with the Croydon area. We learnt that, whilst the rocks of Jersey could hardly attract the palaeontologist since they lack fossils, they contained a host of other interesting geological features to make the island a constant source of attraction.

R. E. BUTLER, *Chairman*. R. J. PARSONS, *Secretary*.

Ornithological Section

Once again, the underlying aims of the Section's work in 1958 were the provision of a widely varied programme of meetings and of the opportunity for all members to take part in various surveys and other field activities. It is most encouraging to note that in its Centenary Year the Society received a further substantial influx of new members, a large proportion of them being ornithologically minded!

Your Committee were able to offer a particularly interesting and varied programme of indoor and outdoor meetings in the Centenary year. The former included a number of attractive film shows as well as lectures on Migration, Flight, Food, Field Studies of individual species and Ornithological Experiences at Home and Abroad. There was also an evening devoted to the problems confronting beginners and so popular did this prove that an item on similar lines has been included in the current series of lectures. The policy of holding a number of joint meetings each session was pursued in 1958 when we joined forces with the British Trust for Ornithology and the Surrey Bird Club to provide meetings in the London Area. Informal meetings have proved more popular than ever and while they are not designed specifically for beginners they all give newcomers an excellent opportunity to meet the more "veteran" members of the Section.

The change-over to the new ringing scheme was completed during 1958 but the hope that the new co-operative ringing schemes would have come into being was, unfortunately, not realized. In recent months the Committee have been considering ways and means of accelerating the process and as a result it is to be hoped that the position will improve.

Sectional publications are always a most important feature of our activities and the 1956 "L.B.R." (published at the end of 1957) was up to the high standards of past years. Special thanks are due to Mr. F. H. Jones who so ably carried out the editorial work up to and including that for the 1958 report in the face of great personal difficulties. Congratulations are also due to Mr. R. Cordero who, with his Committee, continued to make available through *The Bulletin* a great deal of interesting and topical information.

Although rather more use was made of reference works in 1958 the number of books borrowed from the Sectional Library during the year diminished. A number of additions were made to the Library, which contains a wide selection of ornithological works, including local society reports and journal reprints.

While there were no additions to the egg and skin collection, the Society was privileged to receive from Mr. Oliver G. Pike some 78 of his own bird and general natural history photographs. It is pleasing to note that the whole of the egg and skin collection has now been transferred to Eccleston Square.

The various Reading Circles were still well supported but the Secretary, Miss E. P. Brown, is always pleased to consider extending the circle for the benefit of new readers.

Birds of the London Area since 1900 sold completely out soon after publication—sure tribute to its excellence. Conjecture about a new edition would be premature at this stage but the possibility has not been overlooked. Provisional plans were agreed for the making of a colour film on the bird life of the area.

One of the highlights of 1958 was the series of Centenary Exhibitions promoted by the Society. They were a superb achievement and the Ornithological Section is proud to have played its part in them. In this respect full credit for much of the design and art work must go to Mr. L. Baker.

We both retired from office at the 1958 General Meeting. Mr. Leslie Baker became Chairman and Mr. W. D. Park took over the Secretaryship of the Section. In doing so, Mr. Park relinquished the

Secretaryship of the Ringing Section, now in the capable hands of Mrs. M. Waller. It was a pleasure to welcome two new Committee members, J. F. Burton and A. Gibbs, who were also elected at the 1958 A.G.M. We were very sorry when Mr. F. H. Jones announced his resignation from the editorship of the *L.B.R.* and Chairmanship of the Records Committee. At the same time it was comforting to know that these very important tasks would continue to be capably directed by Messrs. H. P. Medhurst and J. L. F. Parslow, who are now joint editors in addition to being recorders respectively for South and North of the Thames. Mr. Medhurst was also appointed Chairman of the Records Committee. After many years of distinguished work as Recorder for Inner London, Mr. W. G. Teagle has been compelled to resign because of pressure of other work and his successor in this office is Mr. A. D. Tomlins. Mrs. E. Adams is now the Minuting Secretary for the Section.

We should both like to record our very sincere thanks and appreciations to Society and Sectional officials and Committee members for their support which made our tasks both easier and even more enjoyable.

S. CRAMP, *Chairman*. A. V. PETTIT, *Secretary*.

Ramblers' Section

During the year there was a further increase of membership.

The evening meetings have been very well attended and included a most interesting lecture given by Miss Mary Field, G.B.E., entitled "Filming Nature," which she followed up by showing two films. Mr. K. H. Lesueur gave us a talk and showed us coloured slides about "Rambles in Mexico" at our Sectional Annual General Meeting. "3-D Nature Photography" by Mr. P. F. Shelton, a talk illustrated by lovely pictures, made a fitting end to our Centenary year.

The average attendance at rambles over the past year has remained constant in spite of the increased membership. Saturday and mid-week excursions have proved to be more popular than whole-day rambles on Sundays. Places visited have continued to be as varied as before. "Swan Upping" was so popular in 1956 that it was repeated again this year, going over a higher reach of the Thames from Staines. This was so well supported by members and friends, as also a previous river trip, that we were able to donate £3 3s. 0d. towards the President's Centenary Fund. A visit to the P.D.S.A. and Barking Abbey on February 8 drew many people in spite of the cold, wet day. In August it was a joy to see the artistic settings and flora of the Hever Castle Gardens. Another noteworthy outing was our visit to Trinity House on November 15.

Our exhibit in the Centenary Exhibition was a screen showing a print of London in Henry VIII's time and a selection of photographs of some places visited.

We would like to express our thanks to our retiring librarian Miss L. Boggis, who has now left London. Miss M. Scholey has kindly offered to fill the position for us.

G. F. LAWRENCE, *Chairman*. L. J. JOHNS, *Secretary*.

South West Middlesex Group

The paid-up membership of the group remains constant: the total membership is 88, made up of 70 full members, 17 Junior members and 1 affiliated society.

The attendance of group members at both indoor and outdoor meetings in the area has been very poor this year, with an average attendance of 15 at indoor meetings and 10 at outdoor meetings. The poor attendance was probably to some extent influenced by transport difficulties and adverse weather conditions; it is however noticeable that more London members than group members attend the field meetings.

The programme secretary, Mrs. P. J. Gray, has arranged a further series of indoor and field meetings; the officers and committee thank Mrs. Gray for the work she has put into the programme.

Informal field meetings, commenced this year as an experiment, seemed to have been reasonably popular and enjoyed by those attending; a further series is arranged for next year.

A further University Extension course at Bulstrode School, Hounslow, on Ornithology with Special Reference to Birds of West Middlesex, was attended by 19 members.

The officers and committee are very concerned about the apparent lack of interest in the administration of the group. As a result a circular letter has been sent to each group member inviting him to interest himself in running the group.

A. ANDERSON, *Chairman*. E. EVERITT, *Secretary*.

LIST OF MEMBERS

(Corrected up to April 7th, 1959)

It is particularly requested that Members will inform the General Secretary of any errors so that the official records may be amended.

- Absolon, Miss E. M., 23 Netherlands Road, New Barnet, Herts. (B.I.)
 Acland, Miss C. M., M.B.O.U., 2 Orchard Close, Banstead, Surrey. (O.)
 Adam, Miss M. S., 343 Park Road, Kingston-on-Thames, Surrey.
 Adams, Mrs. E. M., c/o Mrs. Waller, 77 Princes Avenue, W.3. (B.O.)
 Adams, Miss N. G., 42 Ham Street, Richmond, Surrey. (H.O.)
 Adams, R. L., 6 Friar's Stile Road, Richmond, Surrey. (H.O.)
 Ainsley, B., F.G.S., 16 Belmont Road, Twickenham, Middx. (H.G.)
 Aitken, P., Raithby Cottage, Whitchurch, Pangbourne, Reading, Berks. (B.E.G.I.)
 Aldred, J. A., 27 Comyns Road, Dagenham, Essex. (F.O.)
 Allden, Miss B. J., 28 Sherbrook Gardens, N.21. (O.R.)
 Alder, R. C., High Birches, Copse Close, Northwood, Middx. (O.)
 Allen, D. E., M.A., 49 Palace Court, W.2. (B.)
 Allen, Miss D. M., 254 Leigham Court Road, S.W.16.
 Allen, D. W., 76 Elsham Road, W.14. (O.R.)
 Allen, Miss I. M., 59 Whipps Cross Road, E.11. (F.)
 Allen, Miss M. A., 114 East Dulwich Grove, S.E.22. (B.O.)
 Allen, R. F., 36 Albert Palace Mansions, Lurline Gardens, S.W.11. (E.O.)
 Allibone, J., 17 Conway Road, N.15. (F.O.)
 Almond, Miss G. M., 26 Roy Road, Northwood, Middx. (B.G.O.)
 Ambrose, J. A., B.A., 30 Roedean Crescent, S.W.15. (O.B.)
 Ambrose, Mrs. S., B.A., 30 Roedean Crescent, S.W.15. (O.B.)
 Anderson, A., M.D., D.P.H., 725 Bath Road, Hounslow, Middx. (H.O.)
 Anderson, Miss Y. B., 6 Cresswell Gardens, S.W.5. (B.E.O.)
 Anderton, Miss M., 10 Elms Lane, Sudbury, Wembley, Middx. (B.G.)
 Andrewes, C. H., M.D., F.R.C.P., F.R.S., F.R.E.S., 34 Ossulton Way, N.2. (I.O.)
 Andrews, H. E., 48 Fanshawe Avenue, Barking, Essex. (E.O.)
 Angel, Miss K., 67 Ivanhoe Drive, Kenton, Harrow, Middx. (G.O.)
 Appelbe, A., M.A., LL.B., Fitzroy Park, N.6. (A.E.F.)
 Appelbe, F., Fitzroy Park, N.6. (F.I.O.)
 Appelbe, Miss V., Fitzroy Park, N.6. (B.F.O.R.)
 Appleyard, J. M., Longcroft, Park Avenue, Hutton. Brentwood, Essex. (A.F.I.O.)
 Arch, D. W., 24 Greenheys Drive, E.18. (F.O.)
 Archbold, Mrs. N., 46 Dulwich Road, S.E.24. (O.)
 Archer, Miss B. M., 39 Wenvoe Avenue, Bexleyheath, Kent. (E.I.)
 Arcus, C. L., Ph.D., 2 Boleyn Avenue, Ewell, Epsom, Surrey. (E.G.)
 Arcus, Mrs. C., 2 Boleyn Avenue, Ewell, Epsom, Surrey. (A.G.)
 Armelin, M., 72 Cleveland Road, W.13. (I.O.)
 Arminger, Miss V., 36a Junction Road, N.19. (A.)
 Armstrong, Miss J., 21 Cleveland Drive, Staines Road, Laleham, Middx. (O.)
 Armstrong, Miss L. C., 34 Hayes Garden, Hayes, Bromley, Kent. (B.O.R.)
 Ashburner, M. E., Colour Centre, Farnham Road, Slough, Bucks. (G.O.)
 Ashby, C. B., M.B.O.U., 31 Tudor Close, Cheam, Sutton, Surrey. (E.O.)
 Ashby, J. H., M.Sc., 120 Boundary Road, Chatham, Kent. (O.)
 Ashmole, N. P., The Mill House, Iffley, Oxford. (O.)
 Aspden, Miss E., 18 Gerrards Close, N.14. (A.O.)
 Atkey, Miss B. M., 4 Park Road, Woking, Surrey. (A.O.)
 Atkins, A. R. G., 76 Woodland Way, N.21. (O.)
 Atkinson, R. S., F.Z.S., 46 White Hill Avenue, Barnsley, Yorks. (A.B.E.G.I.O.R.)
 Attfield, Miss M. M., 20 Porden Road, S.W.2. (A.B.O.)
 Attlee, H. G., 4 Combermere Road, St. Leonards-on-Sea, Sussex. (I.O.)
 Atwell, Miss E. R., Flat 1, 81 High Street, Bromley, Kent.
 Austin, A. H., 10 Westover Road, S.W.18. (R.)
 Austin, B. P., 33 Natal Road, S.W.16. (O.)
 Autgaerden, Dr. S., 14 Place Dauphine, Paris, 1. (O.)
 Bachrach, R., 44 Sutton Lane, Hounslow, Middx. (H.O.)
 Bachrach, Mrs. H. V., 44 Sutton Lane, Hounslow, Middx. (B.H.I.O.)
 Backhurst, G. C., 138 Elibank Road, S.E.9. (O.)
 Badcock, F., 1 Caversham Flats, Tite Street, S.W.3. (O.)
 Bagnall, Dr. K. S., D.Sc., F.R.E.S., F.R.S.E., F.L.S., address not known. (B.I.)

- Bailey, A. J. M., B.Sc., F.R.I.C., 45 Denham Crescent, Mitcham, Surrey. (B.E.)
 Bainbridge, R. H., 5 Archery Road, S.E.9. (B.E.I.O.R.)
 Baird, Dr. D. K., 8 Guessens Road, Welwyn Garden City, Herts. (O.)
 Baker, L., 55 Spencer Road, Twickenham, Middx. (O.)
 Baker, Mrs. M., 55 Spencer Road, Twickenham, Middx. (B.)
 Baker, M. F. B., 52 Cuckoo Hill Road, Pinner, Middx. (O.)
 Baker, N., 55 Spencer Road, Twickenham, Middx. (A.I.)
 Baker, P. J., 2 Elmhurst Avenue, Mitcham, Surrey. (B.E.I.)
 Ball, A. C. J., 59 Whitehouse Avenue, Borehamwood, Herts. (A.B.G.O.R.)
 Ball, Mrs. D. M. A., 59 Whitehouse Avenue, Borehamwood, Herts. (A.B.O.R.)
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 Bamber, Miss G., 8 Harland Road, S.E.12. (A.E.G.R.B.I.O.)
 Banfield, J. G., 148 Edenbridge Road, Bush Hill Park, Enfield, Middx. (A.O.)
 Bangerter, E. B., 51 Springfield Avenue, N.10. (B.E.)
 Bannister, H. E., The Red Cottage, Little Heath Lane, Potten End, Berkhamsted, Herts. (B.O.)
 Barber, J. R., 100 Silverdale Avenue, Westcliff-on-Sea, Essex. (O.R.)
 Barker, D. J. P., 8 Cheyne Gardens, S.W.3. (B.E.G.O.)
 Barker, Miss P. M. W., 232 Cannon Lane, Pinner, Middx.
 Barling, Miss E., 29 St. John's Court, Finchley Road, N.W.3. (A.O.)
 Barnard, J., M.B., D.A., 60 Bushwood, E.11. (B.F.M.)
 Barnes, Mrs. E. C., M.B.O.U., Hungerdown, Seagry, Chippenham, Wilts. (B.E.O.)
 Baron, J. T., 15 Nonsuch Court Avenue, Ewell, Epsom, Surrey. (O.)
 Baron, Mrs. E., 15 Nonsuch Court Avenue, Ewell, Epsom, Surrey. (O.)
 Barraud, P. H. F., 1 Cranleigh Gardens, N.21. (O.)
 Barrington, F. J. F., 14a Upper Wimpole Street, W.1. (O.)
 Barrow, Miss J. S., 39 Riddlesdown Road, Purley, Surrey. (O.)
 Bartle, E. W., 469 York Road, S.W.18. (A.B.E.F.G.H.I.O.R.)
 Bartlet, A. W., 35 The Knoll, Hayes, Bromley, Kent. (O.)
 Bartlett, T. L., B.A., M.B.O.U., 91 Woodend Avenue, Roxeth, Harrow, Middx. (E.O.)
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 Baumber, P. A., 3 Gerrards Close, N.14. (O.)
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 Beale, Miss K., 69 Telford Avenue, S.W.2. (O.)
 Beames, I. R., 157a Dunstons Road, S.E.22. (O.)
 Beard, P. E., 114 Birch Way, Hayes, Middx. (H.O.)
 Beardwell, G. E., 24 Exeter Road, N.9. (F.O.)
 Beattie, Mrs. M. G., 147 Harley Street, W.1. (O.)
 Beckett, K. A., 8 Tamworth Road, Hertford, Herts. (A.B.G.E.I.O.)
 Bedford, D. W., 103 Cornwall Road, Ruislip, Middx. (O.)
 Bedford, J., 16 Melvin Road, S.E.20. (B.O.)
 Bedford, J. V., Applegarth, Mark Way, Godalming, Surrey.
 Bedford, W. D., M.B., Ch.B., F.R.C.S., F.R.E.S., The Ferris, Mill Lane, Broxbourne, Herts. (O.)
 Beesley, J. S. S., 83 Eden Way, Beckenham, Kent. (B.E.O.)
 Beisiegel, Miss H., 33 St. Johns Hill Grove, S.W.11. (B.O.R.)
 Belchen, Miss E., 1 Ashworth Mansion, Elgin Avenue, W.9. (B.F.)
 Belshaw, L. G., 7 Cambridge House, Cambridge Road, Teddington, Middx. (A.H.O.)
 Belshaw, Mrs. P., 7 Cambridge House, Cambridge Road, Teddington, Middx. (A.H.O.)
 Bennett, E. D., Sandringham Hotel, Holford Road, N.W.3. (O.)
 Bennett, M. A., 89 St. Ann's Hill, S.W.18. (G.)
 Bennett, Miss M. E., 10 Clarence Road, Teddington, Middx. (B.O.)
 Bennett, W. H., 7a Blomfield Place, W.2. (B.I.O.)
 Bennewith, Miss W., 77 Winn Road, S.E.12. (A.G.)
 Benson, R. B., M.A., F.R.E.S., Member Hon. Soc. Ent. Belg., British Museum (Natural History), Cromwell Road, S.W.7. (B.E.I.O.R.)
 Benthall, Sir (Arthur) Paul, K.B.E., F.L.S., Grey Timbers, Limpsfield, Oxted, Surrey. (B.)
 Bentham, C. H., 11 Epsom Lane South, Tadworth, Surrey. (O.)
 Bernstein, Miss R., 28 Florence Court, Kenninghall Road, E.5. (E.)
 Berryman, E., 7 Joscoyne House, Philpot Street, E.1. (O.)
 Betteridge, H. W. G., 52 Newton Road, Tunbridge Wells, Kent.
 Betts, A. H., 121 Thornlaw Road, S.E.27. (O.)
 Bevan, J., 38 Halsway, Hayes, Middx. (H.O.)
 Beven, G., B.Sc., M.B., M.R.C.S., B.S., M.B.O.U., 16 Parkwood Avenue, Esher, Surrey. (E.I.O.)

- Bignell, V. F., 178 Upper Street, N.1. (A.R.)
 Bignell, Mrs. D. J., 178 Upper Street, N.1. (A.R.)
 Bilham, Mrs. M. G., 49 Oakley Street, S.W.3. (O.F.)
 Bird, Miss P. E., 1a Albion Road, Sutton, Surrey. (O.)
 Bishop, A., 68 Maygrove Road, N.W.6. (O.)
 Bishop, Miss Y., 16 Stanley Crescent, W.11. (G.)
 Bispham, T., B.Sc., A.I.C., 14 Alleyn Park, Norwood Green, Southall, Middx. (O.)
 Black, Miss M. A., 79 Popes Avenue, Twickenham, Middx.
 Blackman, Mrs. D. L. R., 1 King's Ride Gate, Richmond, Surrey. (A.O.)
 Blackmore, J. C., 16 Queen's Walk, N.W.9. (G.)
 Blade, Miss V. I., 60 King Edward's Grove, Teddington, Middx. (H.O.R.)
 Blake, E. A., Beresford, New Road, Twyford, Berks. (O.)
 Blake, F. W., 16 Lindsay Road, Worcester Park, Surrey. (O.)
 Bloom, Miss J. L., 2 St. Michael's Terrace, South Grove, N.6. (E.M.)
 Blyde, P. G. C., 100 Reigate Road, Ewell, Epsom, Surrey. (O.)
 Boardman, S., 109 Monkham's Avenue, Woodford Green, Essex. (B.O.)
 Bobe, K. H., 50 Winn Road, S.E.12. (I.)
 Bollen, Miss L. M., 2 Manor Way, North Harrow, Middx. (E.O.R.)
 Bond, Mrs. M. T., 25 Reedway, Northampton. (O.)
 Boniface, R. A., 5 Grosvenor Road, W.4. (B.)
 Bonner, W. G., 85 Carlton Road, Walton-on-Thames, Surrey. (O.)
 Booth, Miss C., 27 Ashbourne Avenue, N.W.11. (A.B.O.R.)
 Booth, J. B., 18 Lancaster Gate, W.2.
 Boston, F. M., B.A., M.B.O.U., 45 Wilton Place, S.W.1. (O.)
 Bowley, T. E., 143 Ancona Road, S.E.18. (B.E.F.H.I.O.R.)
 Bowlt, C., 8 Linden Avenue, Ruislip, Middx. (A.E.B.I.G.O.)
 Boxall, Miss E., 56 St. Agnes Place, S.E.11. (B.G.O.)
 Boyce, D. W., 12 Palace Road, S.W.2. (E.I.O.R.)
 Braby, C., 5 Arundel Street, W.C.2. (O.)
 Braddick, Mrs. H., 246 Northbrooks, Harlow, Essex. (O.)
 Braddick, R., 246 Northbrooks, Harlow, Essex. (O.)
 Bradley, Mrs. J. D., 53 Osterley Road, Isleworth, Middx. (H.O.)
 Bradley, Dr. R., 13 Eton Villas, N.W.3. (A.O.)
 Braham, Miss L., 16 Wycombe Gardens, N.W.11. (O.)
 Brassington, E. G., Royal Free Hospital, Gray's Inn Road, W.C.1.
 Brewer, Mrs. W., 120 Parkside Avenue, Barnehurst, Bexleyheath, Kent. (O.)
 Brice-Smith, H. M., M.A., 112 Clive Court, W.9. (A.E.I.O.)
 Bridgeman, Miss I. V., 24 Firs Lane, N.21. (A.B.O.)
 Brierley, Mrs. E. M., 35 Burlington Lane, W.4. (A.B.H.O.R.)
 Bristow, Miss A. M. E., 91 Thornlaw Road, S.E.27. (A.B.R.)
 Brittain, R. C., 36 Crantock Road, S.E.6. (I.)
 Brittain, Mrs. S. A., 36 Crantock Road, S.E.6.
 Brittain, Miss P. J., 36 Crantock Road, S.E.6.
 Britten, H., M.M., F.R.H.S., 21 Tollers Lane, Old Coulsdon, Surrey. (B.I.)
 Britton, W. F., Elizabeth Cottage, Old Palace Lane, Richmond, Surrey. (O.)
 Britton, Mrs., Elizabeth Cottage, Old Palace Lane, Richmond, Surrey. (O.)
 Brock, J. H., 79 Lordship Park, N.16. (F.O.)
 Brockington, L., 76 Hungerford Road, N.7. (E.F.O.R.)
 Brockington, R. J., 76 Hungerford Road, N.7. (E.F.O.R.)
 Brockman, J. R., 12 St. Raphael's Way, N.W.10. (A.G.O.R.)
 Brockway, Miss D. M., 12 Bedford House, The Avenue, W.4. (O.)
 Brooker, Miss D. M., 53 Selcroft Road, Purley, Surrey. (B.O.)
 Broughton, Miss S., 7 Victoria Lodge, 84 Kings Avenue, S.W.4. (M.O.R.)
 Brown, Miss B. E., Gresham Cottage, Granville Road, Limpsfield, Oxted, Surrey.
 (E.O.)
 Brown, Miss E. A., 78 Cheviot Road, S.E.27. (B.E.I.O.)
 Brown, Miss E. P., Ponsonby Hall Hotel, 2 Ladbroke Square, W.11. (O.)
 Brown, E. V., 22 Broomfield Lane, N.13. (A.F.R.O.)
 Brown, Miss M. M., 27 The Pleasance, S.W.15.
 Brown, P. E., 31 Park Lane, Old Basing, Basingstoke, Hants. (O.)
 Brown, Miss P. M. B., 18 Ladbroke Square, W.11. (O.)
 Brown-Greaves, Mrs. R. L., B.Sc., 32 Mount Close, Pound Hill, Crawley, Sussex. (E.)
 Brownlow, Lt.-Col. H. G., c/o C. J. Baker, Church Street, High Halstow, Rochester,
 Kent. (O.)
 Brunton, Dr. W. D., 3 The Little Green, Richmond, Surrey. (O.)
 Brush, Mrs. E. J., 138 Morley Hill, Enfield, Middx. (A.O.R.)
 Brushfield, Miss N. N., 8 Aboyne Drive, S.W.20. (O.R.)
 Buckell, L. E., The Hatch, Epsom Road, Leatherhead, Surrey. (B.I.R.)

- Buckland, L. H., 31 Garden Road, Bromley, Kent. (A.B.O.R.)
 Buckland, Miss P. J., 140 Fellows Road, N.W.3. (B.)
 Buffery, A. T., 45 Salterford Road, S.W.17. (G.)
 Bunker, H. E., 15 Roseway, Ashton, Preston, Lancs.
 Burgham, Miss J. E., 39 Honor Oak Road, S.E.23. (G.O.R.)
 Burke, Mrs. A. M., 26 Cumberland Mansions, George Street, W.1. (F.O.R.)
 Burnard, R. A., 49 Burgh Wood, Banstead, Surrey. (O.)
 Burnhill, Miss K., 18a Ritz Court, Byng Drive, Potters Bar, Middx. (O.)
 Burns, Miss D. T., 7 Palace Gate, W.8. (A.R.F.B.O.)
 Burns, Miss M. A., 29 Werter Road, S.W.15. (A.B.R.)
 Burt, Miss E. H., 31 Lancaster Park, Richmond, Surrey. (G.R.)
 Burton, Miss E. M., 3 New Farm Avenue, Bromley, Kent. (B.E.)
 Burton, J. A., 8 Bigginwood Road, S.W.16. (A.E.F.O.M.)
 Burton, J. F., F.R.E.S., 43 Eversley Road, S.E.7. (I.O.)
 Burton, M., D.Sc., F.L.S., British Museum (Natural History), Cromwell Road, S.W.7. (I.O.)
 Butler, R. E., B.Sc., Maison Blanche, Tunbridge Crescent, Headley Road, Liphook, Hants. (B.G.)
 Butler, Miss R. M., School of Nursing, Guy's Hospital, S.E.1. (A.R.)
 Buxton, Miss L. R., Newlands, Stanstead Abbots, Ware, Herts.
 Byerley, B. L. J., F.R.E.S., 3 Courtfield Crescent, Harrow, Middx. (I.)
- Cadbury, J. C., Beaconwood, Rednal, Birmingham. (O.)
 Cameron, J. G., 66c Hazlewell Road, S.W.15. (A.B.O.R.)
 Cameron, Mrs. M. K., 66c Hazlewell Road, S.W.15. (A.B.O.R.)
 Campbell, I. T., 27 The Crescent, N.11. (O.)
 Campbell, J. M. H., M.D., 47 Arkwright Road, N.W.3. (O.)
 Campbell, D. E. D., 47 Arkwright Road, N.W.3. (O.)
 Campbell, Miss M. L., 15 Trinity Rise, S.W.2. (O.)
 Campbell, P. J., 61 Eccleston Square Mews, S.W.1. (O.)
 Camplin, H. B., 21 Newstead Avenue, Orpington, Kent. (O.)
 Cane, A. K., 59 Winchendon Road, S.W.6. (G.O.)
 Cape, Miss B. F., Maybury Mansions, Marylebone Street, W.1. (B.O.R.)
 Card, J. F., 44 The Rise, Elstree, Herts. (O.)
 Card, R. A., 44 The Rise, Elstree, Herts. (O.)
 Care, E., 51 Palmerston Road, S.W.14. (O.)
 Carr, D., Home Mead, Monks Road, Virginia Water, Surrey. (O.)
 Carter, A. G. T., The Moorings, Windsor Road, Egham, Surrey. (O.)
 Carter, G. J., 11 Sidney Boyd Court, West End Lane, N.W.6. (A.B.E.O.)
 Carter, M. J., 30 Stones Road, Epsom, Surrey. (O.)
 Carthy, J. D., M.A., Ph.D., F.Z.S., F.R.E.S., M.Inst.Biol., 32 Snakes Lane, Woodford Green, Essex. (E.I.)
 Carver, R. S., 26 Twyford Road, West Harrow, Middx. (O.)
 Cashmore, R. H. W., 17 Sylverdale Road, West Croydon, Surrey. (B.I.M.O.R.)
 Sir John Cass College, Biological Society, Jewry Street, E.C.3.
 Castell, C. P., B.Sc., F.G.S., c/o British Museum (Natural History), Cromwell Road, S.W.7. (A.B.E.G.O.R.)
 Catcheside, B. T., 142 Northcroft Road, W.13. (H.I.O.)
 Causer, Miss M., St. Katherine's College, N.17. (E.)
 Chagrin, Mrs. E., 48 Fellows Road, N.W.3. (A.G.)
 Chagrin, N., 48 Fellows Road, N.W.3. (A.O.G.)
 Challis, M. W., 9 Noel House, Harben Road, N.W.6. (G.)
 Chambers, Miss E. M., Wandsworth School, Sutherland Grove, S.W.18. (A.B.R.)
 Champtaloup, Miss A. Y., B.A., M.B.E., 18 Guildford Street, W.C.1. (O.)
 Chapman, G. M., c/o 148 Burbage Road, S.E.21. (G.O.)
 Chapman, Miss O. K., Flat 2, 57 Blenheim Gardens, Wallington, Surrey. (O.)
 Chapman, P. R., 28 Braemar Avenue, S.W.19. (B.E.I.G.O.)
 Chapman, R. F., F.R.E.S., 16 Buckhurst Way, Buckhurst Hill, Essex. (I.)
 Chappell, Col. H. J., O.B.E., M.C., T.D., 3 Brook Road, Loughton, Essex. (O.)
 Charity, G. B., 28 Belgrave Court, W.4. (O.)
 Charlton, Miss M. H., 64 Torcross Road, Ruislip, Middx. (B.O.R.)
 Charlton, Miss M. W., 61 Streatham Close, Leigham Court Road, S.W.16. (B.E.)
 Charter, G. B., Ashlyn's Cottage, Lybury Lane, Redbourne, Herts. (O.)
 Chase, Miss M., 64 Holdenhurst Avenue, N.12. (O.)
 Chatterjea, M. K., 5 Grange House, Highbury Grange, N.5. (G.O.)
 Chester, P. J., 13 Canonbury Park North, N.1. (A.F.G.M.O.R.)
 Chester, Mrs. B. M., 13 Canonbury Park North, N.1. (A.F.G.M.O.R.)

- Chesterman, A. de M., F.R.I.C.S., F.L.A.S., Bridge House, Leinthall Starkes, Ludlow, Salop. (A.G.M.O.)
- Chesterman, Mrs. M. E., Bridge House, Leinthall Starkes, Ludlow, Salop. (A.G.M.O.)
- Chidwick, G. B. D., 71 Meadway, Barnet, Herts. (O.)
- Child, A. K., 36 Roydene Road, S.E.18. (O.)
- Chingford Branch, County Library, Hall Lane, E.4.
- Chipperfield, J. G., 26a King's Crescent, N.4. (O.)
- Christopher, Mrs. L., 15 Broadfield Place, Welwyn Garden City, Herts. (O.)
- Christopher, Miss M. C. L., 401 Howard House, Dolphin Square, S.W.1. (A.O.)
- Chrystal, Miss E., B.A., 14 Hildavale Road, Farnborough, Kent. (F.O.)
- Chubb, R., 16 Ranelagh Avenue, S.W.13. (O.)
- Churcher, Miss G. M., Bacteriology Dept., University College Hospital Medical School, W.C.1. (E.I.O.)
- Churches, Dr. E. W., The White House, Colebrook Street, Winchester, Hants. (B.O.)
- Churchill, Miss A. N. C., 92 Holly Lodge Mansions, Oakeshott Avenue, N.6. (O.R.)
- Clanchy, Mrs. B. L., 11 Sylvan Avenue, N.W.7. (O.) Hon. Mem.
- Clark, B. H., 45 The Chine, Grange Park Avenue, N.21. (O.)
- Clark, Miss E. M., 36 Bridgewood Road, Worcester Park, Surrey. (B.O.)
- Clark, F. W., 100 Hinton Way, Great Shelford, Cambridge. (A.B.E.G.O.)
- Clark, Mrs. B. M., 100 Hinton Way, Great Shelford, Cambridge. (A.B.E.G.O.)
- Clark, J. M. T., G.W. Dept., R.A.E., M.O.S., Farnborough, Hants. (A.G.R.O.)
- Clark, L. L., 80 Castelnau, S.W.13. (O.)
- Clark, R., 74 Broom Road, Teddington, Middx. (H.O.)
- Clark, Mrs. A., 74 Broom Road, Teddington, Middx. (H.O.)
- Clark, Miss S. A., 333 Long Lane, Bexleyheath, Kent. (E.I.)
- Clarke, J. D., 6 Hampstead Grove, N.W.3. (O.)
- Clarke, Mrs. J. H., B.Sc., M.A., F.L.S., 6 Hampstead Grove, N.W.3. (E.F.B.)
- Cleeveley, R. J., 6 Hatfield Court, Avenue Crescent, W.3. (B.G.M.O.)
- Cloudsley-Thompson, J. L., M.A., Ph.D., F.R.E.S., F.L.S., 10 Lower Green Road, Esher, Surrey. (A.E.I.)
- Coates, Miss N. H., 38 Marryat Road, S.W.19. (B.O.)
- Codrington, Lt. Col., J. A., c/o Drummonds Branch, Royal Bank of Scotland, 49 Charing Cross, S.W.1. (B.)
- Cohen, Miss M. C., 48 Beacontree Avenue, E.17. (E.F.I.)
- Colclough, J. R., M.A., B.Sc., "Luthers," Sewardstone, E.4. (F.)
- Cole, Miss E. G., 43 Chester Road, Chigwell, Essex. (A.B.E.F.G.I.M.O.R.)
- Coleman, B. W., 3 Cranford Drive, Hayes, Middx. (E.M.O.)
- Coles, J. W., 70 Bridgewood Road, Worcester Park, Surrey. (B.E.I.)
- Coles, R., 56 Westwood Avenue, Harrow, Middx. (B.H.I.)
- Coles, Roger, 145 Shenley Lane, London Colney, St. Albans, Herts. (O.)
- Collenette, C. L., F.R.G.S., F.R.E.S., Wonham House Hotel, South Godstone, Surrey. (B.E.I.O.) Hon. V.-Pres.
- Collenette, Mrs., Wonham House Hotel, South Godstone, Surrey. (O.)
- Collett, G. W., 174 Sheldon Road, Chippenham, Wilts. (B.E.O.R.)
- Collett, T. G., 6 Kent Avenue, W.13. (B.O.)
- Collins, J. S. H., 63 Oakhurst Grove, S.E.22. (E.G.)
- Collins, Mrs. I. J., Russet Cottage, Station Road, Effingham, Leatherhead, Surrey. (B.E.O.)
- Collins, L. A., Rose Cottage, Alfriston, Sussex. (O.)
- Colston, P. R., 5 Nevis Road, S.W.17. (O.)
- Colvin, M. F., 4 Dalkeith Grove, Stanmore, Middx. (A.B.E.F.G.I.O.R.)
- Connolly-Brooks, Miss H., 24 West Drive, Cheam, Sutton, Surrey. (B.)
- Connolly-Brooks, Miss W., 24 West Drive, Cheam, Sutton, Surrey. (B.)
- Connor, K. A., 220 Wakefield Street, E.6. (A.B.)
- Conran, Miss R. J., 75 Hampton Road, Teddington, Middx. (H.O.)
- Constantinidis, Mrs. M., 32 Glebe Road, S.W.13. (E.H.B.G.)
- Conway, G. R., 19 Upper Park Road, Kingston-on-Thames, Surrey. (E.I.)
- Cooke, A. J., 8 Queens Court, Queens Road, Richmond, Surrey. (H.O.)
- Coombs, G. W., 39 Woodmansterne Road, Coulsdon, Surrey. (B.)
- Cooper, J. F., 28 Meadway, Tolworth, Surbiton, Surrey. (O.R.)
- Cope, Miss D. E., 9 Talma Gardens, Twickenham, Middx. (E.I.O.)
- Cope, J. L., 62 Westover Road, S.W.18.
- Corbet, G. B., B.Sc., 16 High Road, Woodford Green, Essex. (E.I.M.O.)
- Corble, D. G., 43 West Cromwell Road, S.W.5. (A.G.)
- Cordero, R. P., Stonewell, Oakway, Reigate, Surrey. (B.O.)
- Cordero, Mrs. J., Stonewell, Oakway, Reigate, Surrey. (O.)
- Corke, D., 45 Hawkwood Crescent, E.4. (E.I.F.)
- Cornall, D. F. J., 24 Honeybrook Road, S.W.12. (O.)

- Cornwall, Miss B. E., 64 Castleford Gardens, Ilford, Essex. (F.O.)
 Cornwall, H. S., 64 Castleford Gardens, Ilford, Essex. (A.F.O.)
 Cory, L. W. J., F.Z.S., 20 St. John's Hill, S.W.11. (A.B.G.R.B.I.O.)
 Cory, Mrs., 20 St. John's Hill, S.W.11. (A.B.G.R.B.I.O.)
 Cosser, R. F., A.R.P.S., F.Z.S., 12 Gordon Road, Beckenham, Kent. (B.E.I.P.)
 Costenbarder, H. P., 50 Wordsworth Drive, Cheam, Sutton, Surrey. (O.)
 Coster, Miss K. E., Hazels, Bushfield Road, Bovington, Hemel Hempstead, Herts. (E.G.O.)
 Cotton, Miss S., 3 Kent Court, Queens Drive, W.3. (B.E.G.)
 Cottrell, N. G., Yeoveney Lodge, Moor Lane, Staines, Middx. (H.O.)
 Coughlan, J., 18 Station Approach Road, Ramsgate, Kent. (M.O.)
 Coultrup, R. C., 126 Ramsay Road, E.7. (A.E.M.O.R.F.)
 Coultrup, Mrs., 126 Ramsay Road, E.7. (A.E.M.O.R.F.)
 Cowan, J. W., 88 Salisbury Road, Leigh-on-Sea, Essex. (B.E.F.)
 Cowlard, M. J., 35 Abbotsford Road, Morden, Surrey. (O.)
 Cox, Miss D., Overlea, Coleman's Hill, Peaslake, Surrey. (O.)
 Cox, H., 13 The Avenue, Watford, Herts. (B.E.F.O.R.)
 Cramp, A. C., 16 Highview Avenue, Grays, Essex. (I.)
 Cramp, S., B.A., M.B.O.U., 9 Queen Court, Queen Square, W.C.1. (E.O.)
 Cranbrook, The Right Hon. The Earl of, C.B.E., Great Glenham House, Saxmundham, Suffolk.
 Cranfield, Miss D. G., 45 Lansdowne Road, W.11. (B.O.)
 Craven, K., 50 Carson Road, S.E.21. (O.)
 Craw, H. A., M.B.O.U., 30 Cranley Gardens, S.W.7. (O.)
 Crawford, J. R., 151 Atkinson Road, Fulwell, Sunderland, Co. Durham. (O.)
 Crawford, M. Y., 2 Church Crescent, N.10. (A.G.O.)
 Crawford, Mrs. R. E., 2 Church Crescent, N.10. (G.O.)
 Cripps, A., 36a Wickham Road, S.E.4. (B.O.R.)
 Cripps, Mrs. A., 36a Wickham Road, S.E.4. (A.B.R.)
 Crocker, J. M., 97 Petts Wood Road, Orpington, Kent. (O.)
 Croft, G. H., 58 Deacon's Hill Road, Elstree, Herts. (O.)
 Croft, Mrs. E. G., Linden Cottage, Ockham Road, East Horsley, Leatherhead, Surrey. (O.)
 Croke, P., 190 Devonshire Road, S.E.23. (G.)
 Crook, Miss G. V., 17 Golden Manor, W.7. (B.G.H.I.O.)
 Crowe, R. W., Grey Tree, South Nutfield, Redhill, Surrey. (O.)
 Croydon, Miss E., 171 High Street, Hampton Hill, Middx. (B.H.)
 Cunha, R. da., 8 Hylands Close, Epsom, Surrey. (O.)
 Cuninghame, Miss D. W. M., 19 Willow Road, N.W.3. (B.E.I.O.)
 Curran, E. A., 220 Roehampton Lane, S.W.15. (B.I.)
 Currie, P. W. E., F.R.E.S., The Island, Oaken, Wolverhampton. (E.I.O.)
 Curtis, Miss M., 42 Ranelagh Road, W.5. (A.E.B.O.R.)
 Cuthell, Miss M. A., Overseas Visitors Club, 3 Templeton Place, S.W.5. (A.G.R.)
- Daffarn, J. D., 32 Leaside Avenue, N.10. (M.O.)
 Dagger, The Rev. J. H. K., c/o National Provincial Bank Ltd., Newport, Salop. (O.)
 Dalby, D. H., B.Sc., Ph.D., 108 Gordon Road, Camberley, Surrey. (A.B.E.G.I.)
 Dalby, Miss G. W., A.R.C.A., 7a Emperor's Gate, S.W.7. (A.B.E.G.O.R.)
 Daly, Mrs. D., 7 Basil Street, S.W.3. (O.)
 Darby, Miss J. M., Ivanhoe, Potters Heath, Welwyn, Herts. (E.F.B.)
 D'Arcy, D. H., c/o 24 Onslow Square, S.W.7. (O.)
 Darlington, Miss I., M.A., 22 Addison Way, N.W.11. (A.B.E.O.)
 Mary Datchelor Girls' School, Camberwell Grove, S.E.5. (E.I.O.)
 Davey, Miss A., Newnham College, Cambridge. (B.H.)
 Davidson, A. F., c/o Coutts & Co., 440 Strand, W.C.2.
 Davidson, Miss H. M., 42 Woodthorpe Road, Ashford, Middx. (B.H.)
 Davidson, Miss I., 61 Cleveley Crescent, W.5. (B.G.O.R.)
 Davidson, J. F., Gowan Park, Cupar, Fife. (G.O.)
 Davies, D. E., 14 Redway Drive, Whitton, Twickenham, Middx. (H.O.)
 Davies, Mrs. O. M., 14 Redway Drive, Whitton, Twickenham, Middx. (H.O.)
 Davies, Miss E. B., 55 Heathcroft, N.W.11. (I.O.)
 Davies, Mrs. H. R., c/o 112 Coleherne Court, S.W.5. (B.O.)
 Davis, A. M. C., 44 Downshire Hill, N.W.3. (B.E.G.O.R.)
 Davis, Miss M. M., Little Houghton Vicarage, Northampton. (B.H.O.)
 Davis, R., Queen Mary College, Mile End Road, E.1. (B.E.)
 Davis, Miss R., Flat 4, 4 Crane Court, Fleet Street, E.C.4. (B.O.R.)
 Dawn, C. L., 38 Colvin Gardens, E.11. (F.O.)
 Day, Miss G. M., 8 West Avenue, Pinner, Middx. (B.E.F.I.R.)

- Dean, Miss E. E., 90 St. Andrews Road, Ilford, Essex. (B.F.I.O.R.)
 Deans, Mrs. N. R., 20 Grove Park Road, W.4. (B.E.H.O.)
 Deans-Brown, Miss B., 95 Christchurch House, Christchurch Road, S.W.2. (R.)
 Dehn, P., 19 Bramerton Street, S.W.3. (O.)
 Dent, J. M., 62 Lakenheath, N.14. (E.I.O.)
 Denyer, E. R., 101 Edenfield Gardens, Worcester Park, Surrey. (E.I.)
 Devlin, Miss A., 16 Burgoyne Road, N.4. (O.)
 De Worms, Baron Charles G.M., M.A., Ph.D., A.I.C., F.R.I.C., F.R.E.S., M.B.O.U.,
 Three Oaks, Shore's Road, Horsell, Woking, Surrey. (I.O.)
 Dickinson, E. C., 1 Dartmouth Grove, S.E.10. (O.)
 Dickinson, H. J., Selborne Cottage, Paston, Norfolk. (O.)
 Dickinson, P. W., 20 Savernake Road, N.W.3. (O.)
 Dobson, Mrs. B. O., 11 Widmer Court, Vicarage Farm Road, Hounslow, Middx.
 (B.H.O.)
 Dobson, Miss V., 6 Wellesley Crescent, Strawberry Hill, Twickenham, Middx. (H.O.)
 Dodds, Miss J. T., 1 Fordham Court, De Vere Gardens, W.8. (A.G.O.)
 Dolman, Miss E. W., 22 Addison Way, N.W.11. (O.)
 Dolton, P. H. I., Langdale, West Drive, Cheam, Sutton, Surrey. (O.R.)
 Donovan, J. W., 21 Woodville Gardens, Ruislip, Middx. (O.)
 Doughty, K. F. W., B.Sc., M.B.O.U., 48 Maryland Way, Sunbury-on-Thames,
 Middx. (O.)
 Doughty, W. C., 23 Hollytree Gardens, Rayleigh, Essex. (O.)
 Dowling, Miss M. L., Chesters, Luddington Avenue, Stroude, Virginia Water,
 Surrey. (B.H.O.)
 Down, E. H., 28 Lynton Mead, N.20. (O.)
 Downe, Mrs. J. H., Dormers, Challock, Ashford, Kent.
 Drakley, Miss E., 13 Heathway, S.E.3. (A.B.G.O.)
 Drane, R., 2 Council House, Matching Tye, Harlow, Essex. (B.I.)
 Draper, P., 9 Mayfair Gardens, Woodford Green, Essex. (B.G.)
 Drew, G. A., Carpoles, Stane Street, Ockley, Surrey. (B.M.O.)
 Drewe, Miss Y., 9 Tangier Road, Richmond, Surrey. (A.B.O.R.)
 Duckett, Miss F., 52 Briton Hill Road, Sanderstead, South Croydon, Surrey. (E.O.)
 Duffin, C. J., M.B.O.U., The Cottage, Lyncroft Gardens, Ewell, Epsom, Surrey.
 (B.E.I.O.)
 Duncan, Miss F. K., Merivale, St. Nicolas Avenue, Leatherhead, Surrey. (A.B.E.M.O.)
 Dunn, Miss V. M. J., 1 St. John's Park, Tunbridge Wells, Kent. (A.B.G.)
 Dunning, A. G., 34 Windmill Street, W.1. (A.B.O.)
 Dyce, J. W., 46 Sedley Rise, Loughton, Essex. (B.I.)
 Dyer, T. A., B.Sc., 5 The Green, Walton-on-the-Hill, Surrey. (A.E.G.I.M.O.)
 Dyte, C. E., F.R.E.S., 133 Slough Road, Datchett, Slough, Bucks, E.I.
- Eades, T. L., 8 Rosedale Road, S.W.15. (A.B.G.I.O.R.)
 Eagles, Miss J. M., M.A., 152 Gloucester Place, N.W.1. (O.)
 Eagles, T. R., F.R.E.S., 32 Abbey Road, Enfield, Middx. (B.I.O.)
 Easterling, C. E., 23 Fryston Avenue, Coulsdon, Surrey. (A.E.G.I.O.)
 Easton, A. M., M.B., B.S., M.R.C.S., L.R.C.P., F.R.E.S., Roadside Cottage,
 Lower Road, Great Bookham, Leatherhead, Surrey. (I.)
 Eastwood, J. M., "Rosslyn," Dukes Avenue, North Harrow, Middx. (G.)
 Edgar, Dr. W. M., 59 East Dulwich Road, S.E.22. (O.)
 Edmundson, D. N., 108 Crookston Road, S.E.9. (O.)
 Edwards, L. L., 73 Woodfield Road, W.5. (H.O.)
 Elborn, Mrs. E., 87 Brudenell Road, S.W.17. (O.)
 Elcombe, G. D., 303 Jersey Road, Osterley, Isleworth, Middx. (H.O.)
 Elliot, Miss M., 34 Brewster Gardens, W.10. (B.R.)
 Ellis, Miss L. H., 16 Druce Road, S.E.21. (B.O.)
 Ellis, Mrs. M. B. H., Boite-Postale, Tanger Socco, Tangier, Morocco.
 Ellis, S. E., B.Sc., 106 Whitelands Avenue, Chorleywood, Herts. (G.)
 Elphinstone, K. V., Artillery Mansions, S.W.1. (O.)
 Elson, Miss M. H., 3 Park Hill Road, Otford, Sevenoaks, Kent. (F.R.O.)
 Eltham Green School, Queenscroft Road, S.E.9.
 Emerson, R. A., 14 Cotswold Road, Sutton, Surrey. (E.O.)
 Entrican, Miss M. C., 3 North Grove, N.6. (O.)
 Eustace, W. S. H., 3 Glenwood Road, S.E.6. (A.)
 Evans, Miss B. V. D., 23 Tweedy Road, Bromley, Kent. (A.E.G.R.)
 Evans, H. J., 33 School Lane, Hythe, Southampton. (A.E.G.O.)
 Evans, H., 46 Aboyne Road, N.W.10. (O.)
 Evans, L. R., Gnome Cottage, Highcombe Bottom, Thursley, Godalming, Surrey
 (E.O.)

- Evans, Mrs. M., Flat 4, 10 Brompton Square, S.W.3. (O.)
 Evans, M. H., B.Sc., Ph.D., 26 Acol Court, Acol Road, N.W.6. (A.E.M.O.)
 Evans, Mrs. G., 26 Acol Court, Acol Road, N.W.6. (A.E.M.O.)
 Evans, M. C. W., 47 Pereira Road, Harborne, Birmingham, 17. (O.)
 Evans, P., M.A., F.G.S., 30 Meadway, Berkhamsted, Herts. (G.)
 Everitt, E., 111 Northumberland Crescent, East Bedfont, Feltham, Middx. (B.H.O.)
 Everitt, Mrs. M., 111 Northumberland Crescent, East Bedfont, Feltham, Middx. (B.H.O.)
 Ewing, R., 56 Mountcastle Drive South, Portobello, Midlothian. (O.)
- Farmer, Miss E. M., 72 Madeira Road, S.W.16. (O.)
 Farmer, Miss D. M., 1 Mount View Road, N.4. (B.)
 Farmer, Miss P. L., 31 The Ridgeway, Kenton, Harrow, Middx. (A.E.G.O.)
 Farrand, J., 58 Westbere Road, N.W.2. (O.)
 Faulkner, Miss A. M. G., 127 Lower Richmond Road, S.W.14. (A.O.R.)
 Faulkner, Miss M. C. M., 127 Lower Richmond Road, S.W.14. (A.)
 Fawdry, Miss D. W., 2a, Argyll Road, W.8. (B.E.R.)
 Fellowes, Miss R., 58 Gloucester Court, Kew, Richmond, Surrey. (A.B.E.H.I.G.O.R.)
 Feltham, C. B. J., 5 Boscastle Road, N.W.5. (O.)
 Ferguson-Lees, I. J., 30 St. Leonard's Avenue, Bedford. (E.O.)
 Ferrier, Miss J. M., F.Z.S., M.B.O.U., Blakeney Downs, Blakeney, Holt, Norfolk. (E.O.)
 Fillmore, L. J., 72 Bloxham Road, Banbury, Oxon. (O.)
 Fillmore, Mrs. N., 72 Bloxham Road, Banbury, Oxon. (O.)
 Fincher, F., F.R.E.S., M.B.O.U., Randan Wood, Woodcote, Bromsgrove, Worcs. (B.E.I.O.)
 Fiore, Miss M., 90 Oakfield Road, N.4. (O.)
 Firth, Mrs. M., 32 De Vere Gardens, W.8. (B.O.)
 Fisher, J. M., M.A., F.L.S., M.B.O.U., F.Z.S., Old Rectory, Ashton, Northampton. (E.O.)
 Fisher, Mrs. M. P., Moat House, Barrow Point Lane, Pinner, Middx. (H.E.I.)
 Fitter, R. S. R., B.Sc., F.Z.S., M.B.O.U., Drifts, Chinnor Hill, Oxford. (B.E.I.O.)
 Fitzgerald, N. J., 67 Springfield Road, N.W.8. (O.)
 Flaxman, E. W., 35 Glenton Close, Rise Park, Romford, Essex. (O.)
 Fleming, Miss E., 88 Broomgrove Gardens, Edgware, Middx. (A.B.G.O.R.)
 Flynn, Miss M. R., 61 Ridge Road, N.8. (A.B.E.F.G.O.R.)
 Fookes, P. G., 55 Moore Park Road, S.W.6. (A.F.G.)
 Fookes, Miss U., 72 St. Mary's Mansions, W.2. (O.)
 Forbes-Watson, Miss A., 18 Hollyhill Drive, Banstead, Surrey. (O.)
 Ford, Miss B. W., B.A., D.N., Oaklea, Whitehall Lane, Buckhurst Hill, Essex. (F.O.)
 Ford, Miss M. J., 47 Arlington Road, W.13. (A.B.H.O.R.)
 Ford, Miss R., c/o Male, 270 Kew Road, Richmond, Surrey. (B.O.)
 Forrester, Mrs. C. E., Sesame Imperial and Pioneer Club, 49 Grosvenor Street, W.1. (A.O.)
 Forrest, D., Belvedere Hotel, 5-7 Grenville Place, S.W.7. (B.E.I.M.O.R.)
 Forster, Miss E., The Double House, Wiveton, Holt, Norfolk. (B.O.)
 Forster, G. H., B.Sc., Silverdale, Idmiston, Salisbury, Wilts. (O.)
 Forster, Miss J., 18 Broad Lane, Hampton, Middx. (B.H.)
 Forster, Dr. J., Flat 3, 2 Ennismore Gardens, S.W.7.
 Foster, J. B., B.A., 12 Conway Road, S.W.20. (O.)
 Foster, K. J., Pennybridge, Gables, Best Beech Hill, Wadhurst, Sussex.
 Fowler, Miss D., c/o Miss Sibley, 37 Sloane Street, S.W.1.
 Fox, Professor H. Munro, F.R.S., 3 Mulberry Court, The Vale, S.W.3. Hon. Pres.
 Foxley, R. H., B.A., F.R.G.S., 13 Albemarle Avenue, Twickenham, Middx. (G.)
 Franks, Miss H., 262 South Norwood Hill, S.E.25. (A.B.E.I.O.R.)
 Fraser, Miss A. G., 81 Addison Road, W.14. (G.O.)
 Fraser, Professor Sir Francis R., M.D., F.R.C.P., 18 Guildford Street, W.C.1.
 Free, Miss A. A., 38 Woodland Road, Loughton, Essex. (A.O.)
 Freeman, G. D., 188 Domonic Drive, S.E.9. (A.G.)
 Freeman, Mrs. V. A. L., 4 Lower Portman Mansions, Chiltern Street, W.1. (O.)
 Frere, Miss E. F. T., 5 Logan Place, W.8. (O.)
 Freshwater, D. V., 25 Princes Court, Shoot-up-Hill, N.W.2. (O.)
 Fricker, H. A., 80 Cornwall Gardens, S.W.7. (A.G.O.)
 Friend, M. J., 160 Brockenhurst Avenue, Worcester Park, Surrey. (I.)
 Fryer, Miss M. M., Little Pednor, The Glade, Fetcham, Leatherhead, Surrey. (B.E.I.O.)
 Fullagar, P. J., 98 West Side, Clapham Common, S.W.4. (B.E.H.I.O.)
 Furnival-Jones, E. M., 5 Meadway Close, N.W.11. (O.)
 Furnival-Jones, Mrs. E. M., 5 Meadway Close, N.W.11. (O.)
 Furse, E. J., Devonian, Durham Road, Bromley, Kent. (I.)

- Gale, J. A. B., 43 Mimms Hall Road, Potters Bar, Middx. (O.)
 Gardiner, J. C., 61 Coleherne Court, S.W.5. (B.)
 Gardner, Miss J. B., 26 Belmont Close, Cockfosters, Barnet, Herts. (O.)
 Garel-Jones, R., 43 Clarendon Drive, S.W.15. (O.)
 Garel-Jones, P., 43 Clarendon Drive, S.W.15. (O.)
 Garrad, Miss J., 32 Ravenscroft Avenue, N.W.11. (A.B.O.)
 Garrett, E. W. A., Rosebay, Friar's Orchard, River Lane, Fetcham, Leatherhead, Surrey. (O.)
 Garrett-Jones, C., M.Sc., F.R.E.S., Le Bossyllon, Collex-Bossy, Geneva. (E.I.)
 Garstang, J., 73 The Avenue, Pinner, Middx. (O.)
 Gartell, Mrs. P., 79 Sunray Avenue, Bromley, Kent. (A.B.E.G.O.R.)
 Gascoigne, T., 14 York Grove, S.E.15. (E.O.)
 Gaskarth, Mrs. K., 51 Park Road, W.4. (B.F.H.O.R.)
 Gatley, K. B., 4 Church Road, N.6.
 Gauss, Miss M. D., Nurses Home, University College Hospital, Huntley Street, W.C.1. (O.)
 Gee, C. A. M., 3 The Chestnuts, 27 Hall Drive, S.E.26. (A.G.O.)
 Geldard, Miss E., 47 Mercers Road, N.19. (E.I.G.)
 Geldard, Mrs. M. A., 47 Mercers Road, N.19. (I.G.)
 George, Miss B., 25 Geariesville Gardens, Ilford, Essex. (F.O.)
 Gibbons, D. L., 34 Cressy Road, N.W.3. (O.)
 Gibbs, A., 271 Great North Way, N.W.4. (O.)
 Gibson, M. G., 8 Pentland Gardens, Edinburgh, 10. (O.)
 Gildersleve, Miss J., 117 Lonsdale Avenue, Wembley, Middx. (G.R.)
 Gill, Col. C. A., Wendover, Underhill Park Road, Reigate, Surrey. (I.O.)
 Gillanders, G., c/o Wilson Sons and Partners, Apartado 666, Maracaibo, Venezuela. (G.)
 Gillett, J. D., B.Sc., Ph.D., F.R.E.S., Virus Research Institute, Entebbe, Uganda, British East Africa. (E.I.)
 Gillingham, D. W., 28 Roding Road, Loughton, Essex. (O.)
 Gladwin, T. W., 36 Chadwell, Ware, Herts. (F.O.R.)
 Glanville, D. J., 72 Algernon Road, S.E.13. (O.)
 Glanville, Miss H., 1 Cannon Place, N.W.3. (H.O.)
 Glasspool, Miss R., 11 Bethell Avenue, Gant's Hill, Ilford, Essex. (B.E.F.O.R.)
 Glen, Mrs. R. McL., 56 Claremont Road, Surbiton, Surrey. (O.)
 Goddard, Miss B. E., 35 Newlands Avenue, Radlett, Herts. (I.O.R.)
 Godfrey, B., 128 Kechill Gardens, Beckenham, Kent. (B.)
 Godolphin and Latymer School, Hammersmith, W.6.
 Goldsmith, B. M., 2 Lancaster House, 237 Sussex Gardens, W.2. (O.)
 Goldsmith's College, Lewisham Way, S.E.14.
 Goller, E. S., 50 South Hill Park, N.W.3. (B.E.F.O.)
 Gompertz, Miss T. G., Woodway, Pinner Hill, Middx. (O.)
 Goodacre, D. M., 3 Arkwright Road, N.W.3. (A.B.E.)
 Goodenough, Miss V. V., 49 Ravenscraig Road, N.11. (B.O.R.)
 Goodfellow, Miss L., 20 Glenwood Road, N.W.7. (O.)
 Goodliffe, F. D., Lord Wandsworth College, Long Sutton, Basingstoke, Hants. (I.)
 Goodwin, Miss B. S., 42 Tycehurst Hill, Loughton, Essex. (F.O.)
 Goodwin, D., M.B.O.U., 40 Frankfurt Road, S.E.24. (E.O.)
 Goom, Miss E. M., B.Sc., 78 Elmfield Avenue, Teddington, Middx. (E.H.O.)
 Goom, Miss N., F.L.A., 78 Elmfield Avenue, Teddington, Middx. (H.O.)
 Gordon, D. J., 50 Chigwell Rise, Chigwell, Essex. (B.F.O.)
 Gore, G. C., 49 Eton Avenue, N.W.3. (O.)
 Goswell, R. W., B.Sc., 34 Crediton Road, N.W.10. (A.B.E.M.)
 Goswell, Mrs. M. J., B.A., 34 Crediton Road, N.W.10. (A.E.I.M.O.)
 Gough, Mrs. C. M., 46 Twyford Avenue, W.3. (O.)
 Gould, A., 1 Latchmere House, Ham Common, Richmond, Surrey. (M.O.R.)
 Gould, S., 1 Latchmere House, Ham Common, Richmond, Surrey. (M.O.R.)
 Gould, H. G., 35 Bergholt Avenue, Ilford, Essex. (O.)
 Gould, J., 55 Broadfield Avenue, N.21. (O.)
 Goulding, R. V., 32 Crawford Street, W.1., (G.I.)
 Gowing, J. H., 61 Wyatt Park Road, S.W.2. (E.O.)
 Graddon, J., 106 Warwick Road, W.14. (O.)
 Graham, Miss E. D., Ferryside, Riverside, Twickenham, Middx. (B.O.)
 Granter, Miss P. R., 64 Fitzjohns Avenue, Croydon, Surrey. (B.E.O.)
 Grasemann, Miss A., 14 Wilman Road, Tunbridge Wells, Kent. (B.E.O.)
 Gray, Mrs. P. J., 74 Church Street, Staines, Middx. (G.H.O.)
 Greener, H. W., 22 Ranelagh Avenue, S.W.13. (I.)
 Greenfield, H. F., B.A., 41 Britains Lane, Sevenoaks, Kent. (O.)

- Greenfield, Mrs., 41 Brittain's Lane, Sevenoaks, Kent. (O.)
 Greenfield, P., 18 Stuart Road, Warlingham, Surrey. (B.O.)
 Greenwood, S. T., 49 Holmwood Road, Chessington, Surrey. (O.)
 Greeves, Mrs. M. E., 12 Newton Grove, W.4. (O.)
 Gregory, Miss E. J., 34 Goldsmith Avenue, N.W.9. (O.)
 Gregory, J., 49 Eaton Place, S.W.1. (A.F.O.)
 Grenham, R., 40 Elderton Road, Westcliff-on-Sea, Essex. (B.)
 Griffiths, P. R., 67 Sturdee Avenue, Gillingham, Kent. (O.)
 Griffiths, Miss R. H., 65 Conway Road, N.14. (A.B.O.)
 Grover, Miss P. M., 88 Holbein House, S.W.1.
 Groves, E. W., 143 Carshalton Park Road, Carshalton, Surrey. (B.E.I.)
 Grubb, P., 13 King's Avenue, W.5. (B.E.O.)
 Guildhall Library, E.C.2.
 Gurney, Miss M. E., 31 Gloucester Place, W.1. (O.R.)
 Gush, G. H., M.B.O.U., Glebe Cottage, Crossfield Place, Weybridge, Surrey.
 (B.E.I.M.O.)
 Guthe, Miss M., 2 Ovington Square, S.W.3. (E.I.O.)
 Gutteridge, R. N., 3 Annes Walk, Caterham, Surrey. (O.)
- Haberdashers' Aske's Hampstead School, Biological Society, Westbere Road, N.W.2.
 Hadfield, Mrs. M. H., Denecroft, Heath Way, Effingham Common, Leatherhead,
 Surrey. (O.R.)
 Hagarty, J. T., 63 Wheatacre Road, Clifton Estate, Nottingham. (O.)
 Hale, R. W., 6 Grendon Gardens, Wembley Park, Middx. (A.B.E.O.)
 Hale, R. E., 65 Bolingbroke Road, W.14. (B.I.)
 Hale, V., 65 Bolingbroke Road, W.14. (B.E.G.I.)
 Hall, Miss B. R., Maria Grey College, St. Margarets Road, Twickenham, Middx.
 (B.E.H.O.R.)
 Hall, D. G., 34 Ellerton Road, S.W.18. (I.O.)
 Hall, J. B., Nakuru, Bridle Lane, Loudwater, Rickmansworth, Herts. (O.)
 Hall, Mrs. K. M., Nakuru, Bridle Lane, Loudwater, Rickmansworth, Herts. (O.)
 Hall, Miss M. J., 13 Petts Wood Road, Orpington, Kent. (F.O.R.)
 Hall, Dr. M. K., 16 Pilgrims Lane, N.W.3. (O.)
 Hall, P. C., 26 Luddesdon Road, Erith, Kent. (B.E.)
 Hall, Mrs. J. F., 26 Luddesdon Road, Erith, Kent. (B.E.)
 Hammond, A. E. F., 98 Ulleswater Road, N.14. (B.E.O.)
 Hammond, F. P., 34 Woodland Way, N.W.7. (G.O.)
 Hammond, N., 121 Crofton Park Road, S.E.4. (E.I.R.)
 Hampsher, I., 15 Bristol House, 80a Southampton Row, W.C.1. (G.O.)
 Hancock, B. D., Long Acre, Godstone Road, Betchingley, Redhill, Surrey. (E.I.M.O.)
 Hancock, V. F., M.B.O.U., 7 Graemesdyke Avenue, S.W.14. (A.B.E.O.)
 Hann, Miss J. G. M., "Kotan," Wraysbury, Staines, Middx. (A.B.E.G.H.I.O.R.)
 Hannay, Mrs. P., Breach House, Cholsey, Wallingford, Berks. (O.)
 Harcourt, Miss R. M., 31 Abinger Road, W.4. (A.G.I.O.R.)
 Hardwick, J. H. M., 26 Ormonde Court, S.W.15. (O.)
 Hare, Miss P. E. F., B.Sc., 80 Coleman Court, S.W.18. (B.G.O.)
 Harland, P. E., 17 St. Martin's Avenue, Epsom, Surrey. (M.O.)
 Harley, B. H., The Old House, Church Lane, Great Missenden, Bucks. (I.M.O.)
 Harley, R. M., The Old House, Church Lane, Great Missenden, Bucks. (B.O.)
 Harrington, G. N., 131 Argyle Road, W.13. (B.E.O.)
 Harrington, C., 131 Argyle Road, W.13. (E.G.O.)
 Harris, A. G. B., 58 King James Avenue, Cuffley, Herts. (O.)
 Harris, A. H., "Red Hazel," Sullington Gardens, Findon Valley, Worthing, Sussex.
 (O.)
 Harris, D. G., 16 Ash Grove, Heston, Hounslow, Middx. (H.O.)
 Harris, Mrs. D. M., 41 Woodside Road, Woodford Green, Essex. (O.)
 Harris, G. J., 33 Wickham Court Road, West Wickham, Kent. (O.)
 Harris, K. G., 144 Wynchgate, N.21. (O.)
 Harris, L. F., 30 Ellis Avenue, Rainham, Essex. (O.)
 Harrison, C. J. O., 178 Mantilla Road, S.W.17. (E.M.O.)
 Harrison, Major J. L., A.R.C.S., D.Sc., F.R.E.S., Q.I.M.R. Field Station, District
 Hospital, Innisfail, North Queensland, Australia. (E.I.)
 Harrison, R. J., Yarne, Oxshott Way, Cobham, Surrey. (O.)
 Hart, G. T., Green Hedges, Newgate Street Road, Goff's Oak, Waltham Cross,
 Herts. (B.E.F.G.I.O.R.)
 Hart, Miss J., 36a Stanley Road, E.12. (E.)
 Hartigan, Miss A. M., 6 Gloucester Avenue, N.W.1. (A.F.O.)
 Hartley, Miss A., 1 Wynchgate, N.14. (O.R.)

- Hartridge, Miss M. R., 94 Canberra Road, S.E.7. (B.O.)
 Harvey, Miss E. N., 28 Hillmore Grove, S.E.26. (B.R.)
 Harvey, J. H., Half Moon Cottage, Preston Cross, Little Bookham, Leatherhead, Surrey. (A.B.I.)
 Harvey, J. L., 151 Chingford Mount Road, E.4. (F.O.)
 Harvey, J. P., 86 Lenton Boulevard, Nottingham. (O.)
 Harvey, P. J. W., 4 Drayton Gardens, S.W.10. (G.O.)
 Hasler, Dr. J. K., Down Wood Lodge, Came, Dorchester, Dorset. (B.O.)
 Hatch, J. H., 32 St. Paul's Road, Egham-Hythe, Surrey. (B.E.)
 Hawkes, Miss J. M., 1 Forge Lane, Station Way, Cheam, Sutton, Surrey. (O.)
 Hawksley, J. C., 38 Queen's Grove, N.W.8. (O.)
 Hayes, Miss D. L., 12 Warrior Square, St. Leonards-on-Sea, Sussex.
 Hayes and Harlington Natural History and Antiquarian Society, Hon. Secretary, 27 Little Road, Hayes, Middx.
 Haynes, F. N., 191 Ladysmith Road, Enfield, Middx. (A.B.E.F.G.)
 Haynes, Mrs. B. D., B.Sc., 191 Ladysmith Road, Enfield, Middx. (A.B.E.F.G.)
 Hayward, H. H. S., 2 Castle Hill Close, Berkhamsted, Herts.
 Hayward, Miss M. M., 51 Belsize Park Gardens, N.W.3. (A.O.)
 Hayman, P. J., 53 Eastmont Road, Esher, Surrey. (O.)
 Heal, A. J., 115 East Sheen Avenue, S.W.14. (O.)
 Heal, Mrs. A. J., 115 East Sheen Avenue, S.W.14. (O.)
 Heath, H. G., 62 Havering Drive, Romford, Essex. (E.I.)
 Heath, D. C., 62 Havering Drive, Romford, Essex. (F.O.)
 Heather, Miss M. M., 120 Cromwell Road, S.W.7. (E.O.R.)
 Hemmings, G. I. W., 6 Waldemar Avenue Mansions, S.W.6. (A.B.E.O.R.)
 Hemmings, Mrs. M. A., 6 Waldemar Avenue Mansions, S.W.6. (A.B.E.O.R.)
 Hemmings, L. G., L.D.S., Maybury Lodge, High Street, Thames Ditton, Surrey. (O.)
 Hemsley, Mrs. A. V., Greenash, Chiswick Mall, W.4. (O.)
 Henriksen, Miss R. H., 10 Harcourt House, 19a Cavendish Square, W.1. (A.E.G.I.O.)
 Hepburn, Miss E. M., 6 Avenue Road, Teddington, Middx. (O.)
 Herbert, A., Bancrofts School, Woodford Green, Essex. (F.O.)
 Herbert, Mrs. J., 218 Ruskin Park House, Champion Hill, S.E.5. (O.)
 Herington, S. D., 8 Eton Villas, N.W.3. (O.)
 Hewitt, J. H., 49 Mount Park Avenue, South Croydon, Surrey. (O.)
 Hewitt, P., 105 Rutland Drive, Morden, Surrey. (A.O.)
 Hick, A. E., Sherrards, Cricketfield Lane, Bishops Stortford, Herts. (B.I.)
 Hicks, Miss N. C., B.Sc., 5 Springfield Close, Stanmore, Middx. (O.)
 Hicks, P. Y., M.B., B.Sc., F.Z.S., Hayes Barton, Totteridge Lane, Totteridge, Herts. (B.I.O.)
 Higham, F. D., 12 Keats Grove, N.W.3. (O.)
 Higson, Miss L. E., 3 Lonsdale Road, E.11. (F.O.)
 Hill, B. A., 8 Willow Gardens, Sutton Lane, Hounslow, Middx. (H.O.)
 Hill, Miss P. F., Maria Grey College, 300 St. Margaret's Road, Twickenham, Middx. (B.E.H.O.)
 Hill, Brig. S. J. L., D.S.O., M.C., 50 Thurloe Square, S.W.7. (O.)
 Hillaby, J. D., F.Z.S., F.R.E.S., 85 Cholmley Gardens, N.W.6. (E.G.I.)
 Hillman, Miss E. M., 16 Exford Road, S.E.12. (E.I.O.R.)
 Hillyer, C. A. C., 219 Salmon Street, N.W.9. (B.O.)
 Hindson, M. T., 11 Holland Park, W.11. (E.R.)
 Hitch, Mrs. E. E., Greenhedges, Long Ditton, Thames Ditton, Surrey. (B.O.)
 Hitchcock, D. L., 37 Harold Gibbons Court, Victoria Way, S.E.7. (E.O.)
 Hoare, F. A., 78 Hamilton Terrace, N.W.8. (O.)
 Hoare, Miss M. R., 78 Hamilton Terrace, N.W.8. (O.)
 Hobday, J. K., 119 Evelyn Avenue, Ruislip, Middx. (I.O.)
 Hodges, A. D. C., 49 Clifton Hill, N.W.8. (A.E.G.I.M.)
 Hoffmann, Miss H. M., Maria Grey College, 300 St. Margaret's Road, Twickenham Middx. (B.E.I.M.R.)
 Holcombe, A. J., 82 The Woodfields, Sanderstead, South Croydon, Surrey.
 Holland, P. C., 28 Hetherington Road, S.W.4. (B.E.I.O.R.)
 Holland, W. E., 156 Woodcote Road, Wallington, Surrey. (E.O.)
 Holland, Mrs. C. E. M., 156 Woodcote Road, Wallington, Surrey. (O.)
 Hollis, J. D., 4a Little Cloister, Westminster Abbey, S.W.1. (A.G.)
 Hollom, P. A. D., Branksome, Pyrford, Woking, Surrey. (O.)
 Holm, Miss A. J. O., Beech Lawn, St. John's Hill Road, Woking, Surrey. (B.G.)
 Holme, H. C., 12 Upper Berkeley Street, W.1. (O.)
 Holmes, Miss A. M., Sunnyside, Shelley, Ongar, Essex.
 Holmes, Miss D. G., 25 Croydon Road, West Wickham, Kent. (A.B.E.G.I.O.R.)
 Holmes, D. L., 69 Powder Mill Lane, Twickenham, Middx. (H.O.)

Holmes, R., 14 Ashleigh Gardens, Upminster, Essex. (O.)
 Holroyd, R., 152 Grand Drive, S.W.20. (O.)
 Holroyde, F. J., "Avonhurst," Camden Park Road, Chislehurst, Kent. (O.)
 Holton-Baldwin, Mrs. J. A., 14 Sydenham Hill, S.E.26. (O.R.)
 Holway, P. H., 201 Longlands Road, Sidcup, Kent. (B.E.I.)
 Holyday, L. C., 30 Grosvenor Road, N.9. (A.B.I.O.R.)
 Homer, D., 23 Harman Avenue, Gravesend, Kent. (O.)
 Homes, R. C., M.B.O.U., 5 Shelver's Way, Tadworth, Surrey. (E.O.)
 Homes, Mrs. D. E., 5 Shelver's Way, Tadworth, Surrey. (E.O.)
 Hood, Mrs. P., Rosebank, Glenmoor Road, Ferndown, Wimborne, Dorset.
 Hopkins, W. E., 120 Ember Lane, Esher, Surrey. (A.B.E.H.O.)
 Hopson, A. W. M., 94 Coldershaw Road, W.13. (G.)
 Hopwood, Brig. J. A., C.B.E., D.S.O., Gilletts, Yarcombe, Honiton, Devon. (O.)
 Horder, Miss H., Dawley House, Stonegrove, Edgware, Middx. (E.O.)
 Horne, Miss J. M., 77 Ellerdine Road, Hounslow, Middx. (B.E.H.)
 Horton, Dr. A. T., O.B.E., 92 Felhampton Road, S.E.9. (B.O.)
 Horton, Mrs. A. T., 92 Felhampton Road, S.E.9. (B.O.)
 Hosford, Mrs. M. S., 58 Harley Street, W.1. (A.B.G.O.)
 Hosking, E., F.R.P.S., M.B.O.U., 20 Crouch Hall Road, N.8. (O.)
 House, Miss M. A., 27 Balmuir Gardens, S.W.15. (A.B.O.R.)
 Houston, W. H., c/o Barclays Bank D.C.O., 29 Gracechurch Street, E.C.3. (O.)
 How, D. R., 20 Broadmead Road, Woodford Green, Essex. (F.)
 Howe, G. A., Denewood, Chestnut Close, Kingswood, Tadworth, Surrey.
 Howlett, Mrs. M. O., 66 Langham Road, N.15. (A.B.F.G.I.O.R.)
 Hubbard, E. W. C., 32 Oldstead Road, Bromley, Kent. (O.)
 Huddy, Miss J. M., 317 Croxted Road, S.E.24. (G.R.)
 Hughes, C., 6 St. Hilda's Avenue, Ashford, Middx. (O.)
 Hughes, K. C. J., 14 Hillcrest Road, S.E.26. (O.)
 Hughesdon, J., 112 Aldenham Road, Bushey, Watford, Herts. (B.I.O.R.)
 Hunt, Miss M., 11 Wolverton Avenue, Kingston-on-Thames, Surrey. (F.O.)
 Hunt, R. J. J., 33 Queens Road, Berkhamsted, Herts. (O.)
 Hunter, E. N., 55 Southway, N.20. (O.)
 Hurcomb, The Right Hon. Lord, G.C.B., K.B.E., 47 Campden Hill Court, W.8. (O.)
 Hurford, H. F., 1 Whitegate Gardens, Harrow Weald, Harrow, Middx. (O.)
 Hurr, E. R., 135 Constance Crescent, Hayes, Bromley, Kent. (A.B.E.G.R.)
 Hurrell, Dr. L. H., M.A., 62 Rayners Lane, South Harrow, Middx. (M.O.)
 Hurtle, Miss E. E. M., 15 Luxemburg Road, W.6. (B.O.)
 Hutchinson, C. C., 18 Albany Road, Derby. (O.)
 Hutson, A. M., 231 Valley Road, S.W.16. (A.E.O.M.)
 Hyam, Miss H. M., 65 Hillfield Road, N.W.6. (O.)
 Hyatt, K. H., 3 Kidbrooke Gardens, S.E.3. (I.O.)
 Hyde, W. D., Tanners, Farthing Hill, Horsham, Sussex. (O.)

Idle, A. A., B.Sc., c/o Mrs. Pickman, 9 Crescent Drive, Maidenhead, Berks. (B.)
 Idle, A. E., 67 Murray Avenue, Bromley, Kent. (G.)
 Ilford County High School for Girls, Cranbrook Road, Ilford, Essex.
 Ing, B., 30 Elmcroft Street, E.5. (B.F.I.)
 Ingold, Miss D., 12 Handel Close, Edgware, Middx. (E.G.O.)
 Ingram, R., 790 Great West Road, Isleworth, Middx. (F.H.O.)
 Ini, Miss S., 29 Torrington Square, W.C.1. (A.E.F.O.)
 Irwin, D. A., 5 The Garstons, Great Bookham, Leatherhead, Surrey. (O.)
 Isherwood, Miss E. M. C., 26 White Post Hill, Redhill, Surrey. (B.)
 Izzard, W. P., Perrymead, Tangmere, Chichester, Sussex. (O.)

James, L., 19 Bushey Road, Ickenham, Uxbridge, Middx. (O.)
 Jaques, Miss G. E., 58 Kenveachy Gardens, S.E.7. (B.E.)
 Jarrett, W. T., Sotwell House, Wallingford, Berks.
 Jeffrey, Miss Y., 61a Westmoreland Terrace, S.W.1. (A.G.)
 Jeffreys, A. H., 13 Cheyne Gardens, S.W.3. (O.)
 Jeffreys, Mrs. D. B., 13 Cheyne Gardens, S.W.3. (O.)
 Jenkins, Miss Z. M. G., 11 Oak Hill Gardens, Woodford Green, Essex. (A.B.E.F.G.I.O.)
 Jephson, Mrs. P., 159 Cromwell Road, S.W.5. (O.)
 Jermyn, S. T., 2, Chestnuts, Hutton Mount, Brentwood, Essex. (B.)
 Jewell, P. A., M.A., Ph.D., 37 Newton Road, W.2. (E.M.)
 Jewell, A. L., Museum Cottage, High Street, Haslemere, Surrey. (E.)
 Jobbins, E. A., 40 Linchmere Road, S.E.12. (O.G.)

- Johns, Miss L. J., 87 Morley Hill, Enfield, Middx. (A.B.E.O.R.)
 Johns, Miss M. E., 130 Station Road, N.W.4. (A.E.G.R.)
 Johnson, Miss E. M. C., 13 Trebovir Road, S.W.5. (O.)
 Johnson, I. G., 124 Sharp's Lane, Ruislip, Middx. (O.)
 Johnston, Miss H. J. P., 2 Hillway, Holly Lodge Estate, N.6.
 Johnston, Miss J., 61 Blenheim Park Road, South Croydon, Surrey. (O.)
 Johnstone, Mrs. M. A., 20 Lower Sloane Street, S.W.1. (A.B.E.)
 Joll, D. E. L., 7 Pelham Place, S.W.7. (O.)
 Jones, A. W., 15 Suffolk Road, S.E.25. (B.E.I.)
 Jones, Miss D. Picton, B.A., 1a Courtfield Road, S.W.7. (A.B.E.O.)
 Jones, F. H., 28 Jordan Road, Greenford, Middx. (O.)
 Jones, H. O., 97 Piccotts End, Hemel Hempstead, Herts. (E.O.)
 Jones, J. E. H., Flat b, 49 Courtfield Gardens, S.W.5. (O.R.)
 Jones, J. P., Messrs. Reynolds and Young, c/o University College of Ghana, Achimota, Accra, Ghana, West Africa. (O.)
 Jones, Miss J., 95 York Hill, Loughton, Essex. (B.F.O.)
 Jones, Mrs. M., 52a Vicarage Road, E.10. (B.F.O.R.)
 Jordan, Miss M., c/o Blegvad, Ekholmsnäs gård, Box 47, Sidingsl, Sweden. (O.)
 Jose, H. W., 44 Downhills Park Road, N.17. (E.F.G.R.)
 Jose, Mrs. S. J., 44 Downhills Park Road, N.17. (E.F.G.R.)
- Kaye, W. J., F.R.E.S., Chantrey Lodge, Longdown, Guildford, Surrey. (1.)
 Keeping, A. J., 16 Jerningham Road, S.E.14. (O.)
 Keer, Miss H. S., M.B., Ch.B., 13 Palace Court, W.2. (E.F.M.O.)
 Keith, G. S., Apartment 3B, 130 East End Avenue, New York City, U.S.A. (O.)
 Keller, Miss P. M., 25 Birdhurst Road, South Croydon, Surrey. (A.E.O.)
 Kelly, D. C., M.A., 92b Brighton Road, Coulsdon, Surrey. (A.B.)
 Kelsey, Dr. F. D., 17 Highgate Avenue, N.6. (B.E.F.O.)
 Kemp, E. T. W., 23 Redstone Manor, Redhill, Surrey. (O.)
 Kendall, A. W., M.S., F.R.C.S., 123 Home Park Road, S.W.19. (A.E.G.O.R.)
 Kendall, M. M., 123 Home Park Road, S.W.19. (A.G.)
 Kennedy, Miss L., 38 St. John's Road, Sandown, Isle of Wight. (B.O.)
 Kennedy, Miss M. E., 62 Lordship Lane, N.16. (A.B.E.G.I.O.R.)
 Kensington, Royal Borough of, Public Libraries, Central Library, Kensington High Street, W.8.
 Kenrick, Miss A., 11 Pembridge Villas, W.11. (O.)
 Kent, D. H., 75 Adelaide Road, W.13. (B.H.E.)
 Kenyon, Miss S., 1 Westbourne Street, W.2. (A.B.E.G.O.)
 Keon, S., 106 Kenilworth Avenue, S.W.19. (O.)
 Kerney, M., "Vasconia," Crown Dale, S.E.19. (G.)
 Kerr, Mrs. H. M. Rait, Paddocks, Copperkins Lane, Amersham, Bucks. (A.E.O.)
 Kettle, R. H., 51 Boundaries Road, S.W.12. (O.)
 Keystone, Miss S., 5 Queensbury Place, S.W.7. (A.B.E.G.O.)
 Keywood, K. P., M.B.O.U., York Cottage, Foley Road, Claygate, Esher, Surrey. (E.I.O.)
 Kidd, B. C., c/o Sir William Halcrow & Partners, 47 Park Lane, W.1. (G.O.)
 Kiddie, Miss E., 6 Khartoum House, Drury Lane, W.C.2. (A.G.O.)
 Kiddle, D. F. A., The Birmingham Settlement, 318 Summer Lane, Birmingham, 19. (A.E.G.B.O.)
 Kilpatrick, F. R., M.S., F.R.C.S., 9 Briar Walk, S.W.15. (O.)
 Kilpatrick, Miss F., 9 Briar Walk, S.W.15. (O.)
 King-Farlow, Mrs. V., 91 Hillway, N.6. (O.)
 Kinns, G., 119 Kennington Park Road, S.E.11. (E.M.)
 Kirby, Miss M. E. K., 42 Brodrick Road, S.W.17. (A.B.G.I.M.O.)
 Kirk, The Rev. B. W., B.D., 65 Colindeep Lane, N.W.9. (B.O.)
 Kirkby-Johnson, Miss E. L., 46 Seymour Court, N.10. (B.O.)
 Klassen, N., 14 Lawn Road, N.W.3. (O.)
 Kneller, Miss B. A., 3 Werks Cottages, Nutfield, Redhill, Surrey. (B.O.)
 Knipe, P. R., 14 Mead Close, Harrow Weald, Middx. (B.E.)
 Knock, R. H., Thimble Hall Cottage, Penhurst, Tonbridge, Kent. (O.)
 Koenig, J., 24 Mayfield Road, Sutton, Surrey. (B.O.)
 Kotkin, H. L., 100 Columbia Road, E.2. (A.B.G.O.)
 Kowalski, J. K., 5 Franconia Road, S.W.4. (B.I.)
- Lacklison, J. D., Melvin Hall, Golders Green Road, N.W.11. (O.)
 Lait, J. P., Kidbrook Hostel, Michael Hall, Forest Row, Sussex. (E.I.G.)
 Lamb, Miss J. F. N., 55 West Cromwell Road, S.W.5. (O.)
 Lambert, F. J., 28 Eastern Road, N.22. (O.)

- Lambert, Lt. Col. H. M., O.B.E., Manor Cottage, Wimbledon Common, S.W.19.
 Lambourn, G., 10 Western Court, Rosebank Way, W.3. (O.)
 Lamerton, G., 233 Footscray Road, S.E.9. (O.)
 Lancaster, F., 49 Jennings Road, St. Albans, Herts. (E.O.R.)
 Landells, Dr. J. W., 18 Balmoral Road, Worcester Park, Surrey. (O.)
 Landells, Mrs. N., 18 Balmoral Road, Worcester Park, Surrey. (O.)
 Langham, Miss L. B., 164 St. Anne's Hill, S.W.18. (O.)
 Langston, H., 41 Oakdene Road, Sevenoaks, Kent. (O.)
 Lansbury, I., 11a Battlefield Road, St. Albans, Herts. (I.O.)
 Lascelles, Sir Francis, K.C.B., M.C., 47 Emperor's Gate, S.W.7. (O.)
 Lascelles, Lady E., 47 Emperor's Gate, S.W.7. (O.)
 Latham, J. J., B.E.M., 15 Berkeley Road, Hillingdon, Uxbridge, Middx. (O.)
 Laundon, J. R., 74 Finsbury Park Road, N.4. (B.E.O.)
 Laurence, B. R., Ph.D., F.R.E.S., Questover, Wych Hill Lane, Woking, Surrey.
 (E.I.)
 Laurie, Miss M. G., B.A., 37 Stanhope Gardens, S.W.7. (A.B.R.)
 Law, Miss M. A., 24 Harley Place, W.1. (E.G.O.)
 Lawfield, W. N., 345 South Lane, New Malden, Surrey. (B.)
 Lawrence, G. F., 27 Old Devonshire Road, S.W.12. (B.E.I.R.)
 Lawrence, Mrs. H. M., 27 Old Devonshire Road, S.W.12. (B.R.)
 Lawrence, C. A., 27 Old Devonshire Road, S.W.12. (B.I.R.)
 Lawrence, Miss M. J., 27 Old Devonshire Road, S.W.12. (A.B.E.I.G.O.R.)
 Learer, Miss J. P. B., 73 Harcourt Terrace, S.W.10. (A.B.E.G.O.R.)
 Ledlie, Mrs. E. M., M.B., B.S., Flat 6, 177 Queens Gate, S.W.7. (A.B.O.)
 Lee, G., 72 Eastbury Road, Northwood, Middx. (A.E.O.R.)
 Lees, Miss M. R., 24 Fernshaw Road, S.W.10. (A.F.G.O.)
 Le Gros, A. E., 155 Glenfarg Road, S.E.6. (E.G.I.)
 Leighton, Mrs. E., 6 Old Park Avenue, S.W.12. (O.)
 Leigh-White, Miss R. V. R., 42B Elizabeth Street, S.W.1. (B.E.G.)
 Leiper, Miss G., 39 Stonehills Court, S.E.21. (B.O.R.)
 Le Masurier, P. C., Alt-na-craig, Aviemore, Invernesshire. (I.)
 Lennard-Jones, Dr. J. E., 61 Pasture Road, Wembley, Middx. (O.)
 Le Souef, A. S., C.M.Z.S., R.A.O.U., Taronga Zoological Park Trust, Sydney,
 N.S.W., Australia. Hon. Mem.
 Le Sueur, K. H., 23 Rosary Gardens, S.W.7. (B.G.)
 Le Sueur, Mrs. K., 23 Rosary Gardens, S.W.7. (B.G.)
 Leutscher, A. G., B.Sc., F.Z.S., 24 Overton Drive, E.11. (E.F.)
 Levene, J. G., 77 Redchurch Street, E.2. (F.O.)
 Levere, T. H., 74 Ormond Court, Upper Richmond Road, S.W.15. (O.)
 Lewicki, W., 20 Queens Crescent, N.W.5. (O.R.)
 Lewis, E., F.R.E.S., 8 Parry Road, S.E.25. (I.)
 Lewis, Miss J. F., 5 Glengall Road, Woodford Green, Essex. (B.E.F.O.R.)
 Lewis, Miss M. I., 56 Park Road, New Barnet, Herts. (A.O.)
 Lewis, R. A., 37 Endwell Road, S.E.4. (A.O.)
 Lewis, Mrs. D. J., 37 Endwell Road, S.E.4. (A.B.E.F.G.I.M.O.R.)
 Lewis, R. S., F.R.C.S., 88 Maida Vale, W.9. (O.)
 Leyton Public Libraries, Central Library, High Road, E.10.
 Lilley, H. A., 71 Station Street, Walton-on-Naze, Essex. (O.)
 Lilley, K., 65 Shepherds Bush Road, W.6. (O.)
 Limmer, Miss A., 21 Alwyn Avenue, W.4. (O.)
 Linford, K. J., 36 Woodhall Gate, Pinner, Middx. (O.)
 Lingwood, Miss J., 29 Craven Close, N.16. (A.M.O.R.)
 Lintern, A. J., 33 North Side, Clapham Common, S.W.4. (B.G.I.O.R.)
 Lister, P., 56 Mount Ephraim Lane, S.W.16. (H.O.)
 Littlejohn, H. A., F.Z.S., c/o A. Stent & Sons, Brockhampton Lane, Havant, Hants.
 (B.I.O.R.)
 Lloyd, Miss B. O., 96 Queens Gate, S.W.7. (O.)
 Lloyd, V. E., M.C., M.B., B.S., 10 Algers Road, Loughton, Essex. (B.H.)
 Locket, G. H., M.A., M.Sc., Atners Tower, Stockbridge, Hants. (E.I.)
 Lockett, H., 47 Bingham Road, Croydon, Surrey. (O.)
 Lockett, J. H., White Thorns, Goldrings Road, Oxshott, Leatherhead, Surrey.
 Lockett, T. H., 69 Norfolk Avenue, Sanderstead, South Croydon, Surrey. (O.)
 Lodge, G., 8 West Parade, Worthing, Sussex. (O.)
 Longfield, Miss C. E., F.R.G.S., F.Z.S., F.R.E.S., M.B.O.U., The Park House,
 Cloyne, Co. Cork, Eire. (B.E.I.O.R.) Hon. V.-Pres.
 Longhorn, Miss M. E., Louis Fleischmann, Nurses Home, L.N.O. Hospital, Stanmore,
 Middx. (E.I.)
 Lousley, J. E., 7 Penistone Road, S.W.16. (B.E.O.)

- Lovell, R. J., 73 Beech Hall Road, E.4. (F.I.O.)
 Lowe, Major P. B., M.B.E., T.D., 28 Palace Road, East Molesey, Surrey. (E.O.)
 Lowen, D., Redsands, Priory Road, Bicknacre, Chelmsford, Essex. (O.)
 Lowen, Mrs. J., Redsands, Priory Road, Bicknacre, Chelmsford, Essex. (O.)
 Ludford, J. H., 3 Poplar Road, Leatherhead, Surrey. (A.B.E.G.I.O.R.)
 Lutwyche, Miss V. U., 24 Well Walk, N.W.3. (O.)
 Lyne, Miss P., 108 Alfriston Road, S.W.11. (E.M.R.)
 Lyon, D. J. de B., 22 Washington Road, Worcester Park, Surrey. (I.O.)
- McAnally, Dr. D., 97 Blandford Street, W.1. (O.)
 McAuliffe, Miss R. E. M., 40 Great Arthur House, Golden Lane, E.C.1. (A.B.F.R.)
 McClintock, Major D., M.A., A.C.A., Bracken Hill, Platt, Sevenoaks, Kent. (B.O.)
 McCulloch, Lt.-Col. G. K., O.B.E., F.Z.S., M.B.O.U., 5 Roy Road, Northwood, Middx. (O.)
 McCulloch, Miss G. M., 3 West Halkin Street, S.W.1. (B.F.I.O.R.)
 McCusker, T. G., 14 Denmark Road, Carshalton, Surrey. (B.E.G.I.O.R.)
 McCusker, Miss R. L., 14 Denmark Road, Carshalton, Surrey. (B.E.G.I.O.R.)
 McDonald, M. G., 1 Frensham Drive, S.W.15. (O.)
 McEwen, Miss E., c/o Westminster Bank Ltd., 74 Westbourne Grove, W.2. (O.)
 McGilchrist, Miss H., 13 Sheridan Road, S.W.19. (M.O.)
 McHoul, J., 76 Princes Court, Brompton Road, S.W.3. (O.)
 MacIlwaine, Miss K. S., 26 Emperor's Gate, S.W.7. (O.R.)
 McIlwraith, Miss A., 37 St. James Road, Hampton Hill, Middx. (B.H.)
 Mackay, H. M. M., M.D., F.R.C.P., M.R.C.S., F.R.S.M., 20 Glenwood Road, N.W.7. (O.)
 Mackintosh, W., 9 Enmore Road, S.W.15. (A.B.E.I.)
 McLay, J., 33 Village Way, Pinner, Middx. (O.)
 McLay, Mrs. I., 33 Village Way, Pinner, Middx. (O.)
 Maclean, Miss M. C. F., 15 Chesterford Gardens, N.W.3. (A.F.O.R.)
 McLeish, Miss G., M.Sc., 6 Salisbury House, Rodwell Close, Field End Road, Eastcote, Ruislip, Middx. (E.I.O.)
 MacLeod, Miss M. E., 38 Hollingbourne Road, S.E.24.
 McManus, T. J., 12 Gainsborough Mansions, Queens Club Gardens, W.14. (A.B.E. G.H.I.O.R.)
 McMullen, Mrs. W. M., 87 Clock House Lane, Ashford, Middx. (H.O.)
 MacPherson, Miss A. M. C., M.D., F.R.C.P., 22 Well Walk, N.W.3. (O.)
 Mackworth-Praed, C. W., F.R.G.S., F.Z.S., F.R.E.S., M.B.O.U., Castletop, Burley, Ringwood, Hants. (I.O.)
 Magee, J. D., 68 Bushey Mill Lane, Watford, Herts. (O.)
 Mandeville, R. P., 8 Hampstead Hill Gardens, N.W.3. (E.F.I.M.O.R.)
 Manktelow, Miss H., 49 Morris House, Salisbury Street, N.W.8. (A.B.E.G.H.I. M.O.R.)
 Mann, E., 10 Frankland Road, E.4. (E.I.O.)
 Mann, F. R., M.C., Noreena, Ham Common, Richmond, Surrey. (O.)
 Mannering, A. R., 42 Brycedale Crescent, N.14. (O.)
 Manser, G. E., The School House, Chinnor, Oxford. (B.E.O.)
 Manser, L. B., 176 Welling Way, Welling, Kent. (O.)
 Manser, P. R., 176 Welling Way, Welling, Kent. (I.O.)
 Mansfield, Miss D., 5 Park Avenue, Staines, Middx. (B.E.H.I.R.)
 Marchant, Miss R. M., Little Sheperds, Austenwood Lane, Gerrards Cross, Bucks.
 Mardell, R. J., 37 Brockenhurst Gardens, N.W.7. (I.)
 Marfleet, Miss M. F. E., 28 Shepherds Road, Watford, Herts. (B.E.G.I.O.R.)
 Maria Assumpta Training College, 23 Kensington Square, W.8.
 Marks, Mrs. C. A., 49 Princes Park Avenue, N.W.11. (A.B.O.)
 Marks, Miss K. M., 11 Ennerdale Road, Kew Gardens, Richmond, Surrey. (B.)
 Marsh, B. A., 19 Grasmere Avenue, S.W.15. (O.)
 Marsters, Miss B., 41 Brighton Road, Sutton, Surrey. (B.E.G.I.O.R.)
 Martin, A. E., M.D., Baynards, Bourne End, Bucks. (A.B.)
 Martin, Mrs. A. J., 40 Princes Road, S.W.19. (B.E.I.)
 Martin, V. C., c/o Mails Branch, Commonwealth Relations Office, Downing Street, S.W.1. (A.E.O.)
 Maskell, Miss E., Maria Grey College, 300 St. Margaret's Road, Twickenham, Middx. (B.H.I.O.)
 Mason, C. T., "Lavender House," Windsor Lane, Burnham, Bucks. (I.)
 Mason, Miss G. L. A., 108 High Street, Hampton, Middx. (B.H.O.)
 Mason, Mrs. J., 205 Shooters Hill Road, S.E.3. (A.O.)
 Masters, Miss P., 56 Palace View, Bromley, Kent. (B.E.O.R.)
 Mather, D. H., 45 Hawke Road, S.E.19. (O.)

- Mathieson, Miss M. L., 7 Crescent Road, E.4. (F.)
 Maudsley, Miss J. E., 158 Hoppers Road, N.21. (B.E.F.R.)
 Maunder, Miss O., F. 513, Du Cane Court, Balham High Road, S.W.17.
 Mawson, S. R., F.R.C.S., White Walls, Rectory Lane, Sidcup, Kent. (O.)
 Maxwell, J. D., 6 Westmorland Road, North Harrow, Middx. (E.)
 May, K. G. N., 19 Victoria Parade, Broadstairs, Kent. (B.E.F.I.)
 May, R. H., 8 Silvertown Road, W.6. (O.)
 May, Mrs. W. F., 8 Silvertown Road, W.6. (O.)
 Mayall, R. G., M.B., M.R.C.S., L.R.C.P., 41 Woodville Gardens, W.5.
 Mayhew, R., 57 Gordon Close, Staines, Middx. (H.O.)
 Maynard, T. R., 26 Kenton Park Crescent, Kenton, Harrow, Middx. (O.)
 Meadows, B. S., 77 Village Road, Enfield, Middx. (O.)
 Medhurst, Miss J. A., 247 Haverstock Hill, N.W.3. (B.E.G.M.O.R.)
 Medhurst, H. P., 10 Semley Road, S.W.16. (O.)
 Medhurst, Mrs. M., 10 Semley Road, S.W.16. (O.)
 Melderis, Dr. A., 12 Bankhurst Road, S.E.6. (B.)
 Melliush, W. D., M.B.O.U., 25 St. John's Avenue, Leatherhead, Surrey. (A.E.O.)
 Melzer, Miss, V., 77 Elm Park Gardens, S.W.10. (B.E.O.R.)
 Mercers' School Scientific Society, Mercers' School, E.C.1.
 Meredith, P., 28 Canning Road, Addiscombe, Croydon, Surrey. (B.O.)
 Messervy-Whiting, G. T., 4 Alexandra Mansions, S.W.3. (A.O.R.)
 Messervy-Whiting, G., 4 Alexandra Mansions, S.W.3. (G.I.)
 Metcalf, F., F.R.S.A., 17 Ravenscroft Park, Barnet, Herts. (B.E.)
 Micholet-Coté, G. P. F., 2 de Quincey House, Churchill Gardens, S.W.1. (E.O.)
 Middlesex County Libraries, Gayton Road, Harrow, Middx.
 Millar, C. W. A., The Mount, Goring-on-Thames, Reading, Berks. (O.)
 Miller, J. A. d'E., 10 Church Street, Alton, Hants. (O.)
 Mills, A. B. M., 17 Minniedale, Surbiton, Surrey. (G.O.)
 Milne, B. S., 6 Raleigh Avenue, Wallington, Surrey. (O.)
 Milne-Redhead, E. W. B. H., F.L.S., 7 Ashley Gardens, Petersham, Richmond, Surrey. (B.H.I.O.)
 Milner, C. A., 21 Hillcroft Avenue, Rayners Lane, Pinner, Middx. (B.O.)
 Milner, Miss E., Hillside, St. Michaels Avenue, Pitsea, Basildon, Essex.
 Mintern, Miss F. A., 73 Elsinor Road, S.E.23. (B.R.)
 Mitchell, F. J. L., M.A., Putlands, Old Heathfield, Sussex. (O.)
 Mitchell, Miss J., 262 South Norwood Hill, S.E.25. (B.E.F.G.I.O.R.)
 Mitchell, W. N., 24 Townsend Road, Southall, Middx. (H.O.)
 Mobbs, Miss M., 33 Salcott Road, S.W.11. (G.O.)
 Molony, Mrs. G. V. P., 3 Orchard Close, Canons Drive, Edgware, Middx. (O.)
 Mond, Dr. N. C., Five Trees, Wood Lane, Stanmore, Middx. (O.)
 Monkhouse, Miss A., College Hall, Malet Street, W.C.1. (A.B.E.F.G.H.I.O.R.)
 Monk-Jones, A., 44 Gerard Road, S.W.13. (O.)
 Moore, Mrs. E. I., Gorseway School, Scrap Road, Hayling Island, Hants. (B.O.R.)
 Moore, F. L., 3 Woodfield Way, Bounds Green Road, N.11. (O.)
 Moore, Mrs. M. M., 3 Woodfield Way, Bounds Green Road, N.11. (O.)
 Moore, G. W., 23 Nightingale Road, Hampton, Middx.
 Moore, Captain H. H. R., R.N., United Services Club, Pall Mall, S.W.1.
 Moorman, R. F., F.G.S., 213 Eton Road, Ilford, Essex. (B.)
 Moorman, Mrs. R. M., 213 Eton Road, Ilford, Essex. (B.E.I.O.R.)
 Morgan, Miss B. M. C., B.A., Fairfield, Old Road, Buckland, Betchworth, Surrey.
 Morgan, D. A. T., c/o Barclays Bank Ltd., Leiston, Suffolk. (E.O.R.)
 Morgan, E. W. A., B.Sc., 8 St. Paul's Wood Hill, Orpington, Kent. (B.O.)
 Morgan, Mrs. G. C. E., 12 Northstead Road, S.W.2. (A.G.)
 Morgan, G. H., 1 Felstead Road, Waltham Cross, Herts. (B.)
 Morgan, G. S., 49 Dresden Road, N.19.
 Morgan, O., 5 Leitch House, Alexandra Road, N.W.8.
 Morgan, P. J., 14 Earlswood Avenue, Thornton Heath, Surrey. (B.E.G.O.)
 Morison, G. D., B.Sc., Ph.D., 4 Granville Place, Aberdeen. (I.)
 Morse, K., 93 Percy Road, W.12. (I.)
 Mott, P. G., 25a Netherhall Gardens, N.W.3. (O.)
 Moule, Miss G. M. S., 19 Inglis Road, W.5. (B.F.H.M.O.R.)
 Moxey, P. A., 46 Rowlands Avenue, Hatch End, Pinner, Middx. (A.E.G.O.)
 Moy, R. F., 37 Hyde Vale, S.E.10. (A.G.I.O.)
 Mugele, G. F., 88 Mornington Road, E.4. (F.O.)
 Muir-Wood, Miss H. M., D.Sc., 4 Gliddon Road, W.14. (B.O.R.)
 Munro, Miss M., 50a Hendham Road, Trinity Road, S.W.17. (E.O.)
 Munson, D. E., 108 Crookston Road, S.E.9. (B.O.R.)
 Murphy, P., 21 Glenwood Road, N.W.8. (I.O.R.)

- Murray, D. D., 38 Westbury Road, S.E.20. (O.)
 Murray, H., "Bracken," Cornsland, Brentwood, Essex. (O.)
 Muscott, Miss M., Coopersale Vicarage, Coopersale, Epping, Essex. (F.O.)
 Myers, A. F., 16 Haseldine Meadow, Hatfield, Herts. (E.O.)
- Nagle, Miss L., 104 River Way, Loughton, Essex. (A.R.F.G.)
 Nau, B. S., 28 Baas Lane, Broxbourne, Herts. (O.)
 Neal, L. A., 84 Prince Albert Road, N.W.8. (A.G.R.)
 Nelmes, Miss E. M., 27 Westbourne Avenue, W.3. (E.)
 Newberry, D. A., 11 Layhams Road, West Wickham, Kent. (B.E.G.O.)
 Newbury, R. D. A., 124 Bromley Road, Beckenham, Kent. (O.)
 Newcome, J. C., 623 Gale Street, Dagenham, Essex. (B.I.G.)
 Niblett, M., F.R.E.S., 10 Greenway, Wallington, Surrey. (E.I.)
 Nicholson, Miss B., San Simeon Guest House, 52 Wimborne Road, Bournemouth, Hants.
 Nicholson, E. M., C.B., M.B.O.U., 13 Upper Cheyne Row, S.W.3. (E.O.)
 Nicholson, E. T., 21 Holly Drive, E.4. (E.F.O.)
 Nicholson, Miss P. J., 38 Kidbrooke Park Road, S.E.3. (E.O.)
 Nicoll, J. H., 7 Belsize Avenue, N.W.3. (O.)
 Nihill, T., 102 Farnham Road, Welling, Kent. (A.E.)
 Noake, D. A. T., 40 Eastwood Road, E.18. (F.O.)
 Nockles, Miss R. E., 33 Lapstone Gardens, Kenton, Harrow, Middx. (A.B.E.F.G. M.O.R.)
 Norkett, A. H., Fawley Cottage, Guildford Road, Great Bookham, Leatherhead, Surrey. (B.E.)
 Norris, C. A., M.B.O.U., Clent House, Clent, Worcs.
 Norsworthy, H. H., 8 Balliol House, Manor Fields, S.W.15. (O.)
 Northwood, Mrs. M. E., 26 Henry's Avenue, Woodford Green, Essex. (B.F.O.R.)
 Nutting, Miss D. R., 62 Cathcart Road, S.W.10. (I.G.)
 Nye, E. R., B.Sc., 20 Bramley Road, N.14. (I.)
- Oakes, M., 108 East 86th Street, New York, 28 N.Y., U.S.A. (O.)
 Oakley, H. A., 40 Washington Road, Worcester Park, Surrey. (G.)
 O'Callaghan, H., 28 Arundel Square, N.7. (G.)
 Offen, E. C., 126 Whitehouse Way, N.14. (O.)
 Offen, Mrs. M. J., 126 Whitehouse Way, N.14. (O.)
 Ogilvy, Captain W., M.B.E., J.P., 11 Chelsea Embankment, S.W.3. (O.)
 O'Grady, B. T., 21 Upton Park, Slough, Bucks. (A.O.H.)
 Okker, A. G., 40 Chaucer Road, E.11. (F.O.)
 Oliver, P. J., 20 Horniman Drive, S.E.23. (E.G.O.)
 Ollevant, D., 3 Salcombe Drive, Morden, Surrey. (I.)
 Olpin, W. E., 32 Ravenscraig Road, N.11. (B.E.F.O.)
 O'Nian, Miss E. A., 99 South Hill Park, N.W.3. (A.E.G.B.O.)
 Openshaw, Miss V. R., 125 Bishop's Mansions, Bishop's Park Road, S.W.6.
 Ormerod, E. C., 25 Rutherford Way, Bushey Heath, Herts. (B.I.O.)
 Oswald, R. A., 41 Melville Road, S.W.13. (H.O.)
 Outhwaite, T. L., 54 Hazelwell Road, S.W.15. (O.)
 Owen, B., 47 Leaside Avenue, N.10. (B.I.O.R.)
 Owens, O. F., Flat 16, 6/9 Charterhouse Square, E.C.1. (B.O.)
- Pacey, Mrs. J., Noel Cottage, The Chantry, Headstone Lane, Harrow, Middx. (A.B. E.G.H.I.O.R.)
 Pacey, L. P., Noel Cottage, The Chantry, Headstone Lane, Harrow, Middx. (A.B.E. G.H.I.O.R.)
 Paddington Public Libraries, Porchester Road, W.2.
 Padwick, H. N., 13 Lawrence Road, Pinner, Middx. (O.)
 Palmer, B., 118 Kensington Park Road, W.11. (B.E.H.O.R.)
 Palmer, Miss G. E., 56 Rusper Road, N.22. (F.O.)
 Palmer, K. H., 17 Wellington Close, Dibden Purlieu, Southampton. (O.)
 Palmer, Miss U. M., Nursing Staff, Royal Free Hospital, Lawn Road, N.W.3. (B.E.)
 Park, Miss M. A., 79 Warple Road, S.W.18. (B.E.F.I.R.)
 Park, V. C., 23 Pollards Hill West, S.W.16. (O.)
 Park, Mrs. J. M. M., 23 Pollards Hill West, S.W.16. (O.)
 Park, W. D., 8 Worcester Park Road, Worcester Park, Surrey. (E.O.)
 Parker, A. C., 51 Walmer Close, North Romford, Essex. (O.)
 Parker, G. L., 89 Connaught Road, Teddington, Middx. (A.G.H.O.R.)
 Parmenter, L., F.R.E.S., 94 Fairlands Avenue, Thornton Heath, Surrey. (B.E.I.O.)
 Parnall, Miss E., 15 Victoria Avenue, Surbiton, Surrey. (A.B.G.I.R.)

- Parnell, Miss L. A., 33 Sinclair Road, W.14. (A.B.G.)
 Parr, D., 20 Filby Road, Chessington North, Surrey. (O.)
 Parrinder, E. R., M.B.O.U., 91 Weald Road, Sevenoaks, Kent. (E.O.R.)
 Parrinder, Mrs. E. D., 91 Weald Road, Sevenoaks, Kent. (E.O.R.)
 Parry, C. C., 1 Fairfield Avenue, Ruislip, Middx. (A.O.)
 Parry, Mrs. H. M., 1 Fairfield Avenue, Ruislip, Middx. (A.B.O.)
 Parry, Miss M. K. M., 1 Fairfield Avenue, Ruislip, Middx. (A.E.O.)
 Parslow, J. L. F., c/o The Bird Room, British Museum (Nat. Hist.), S.W.7. (O.)
 Parsons, C. H. F., 37 Court Farm Road, Northolt, Greenford, Middx. (O.)
 Parsons, Miss E. M., 12 The Meadway, Buckhurst Hill, Essex.
 Parsons, R. J., 19 Alexandra Gardens, Hounslow, Middx. (A.G.H.O.)
 Pateman, H., St. Marks Vicarage, Sandringham Road, E.8. (A.G.O.)
 Paterson, Miss I. S. C., 20 Hawthorn Croft, Quinton, Birmingham, 32. (B.)
 Paton, Miss J., B.Sc., 1 White Close, Winchelsea, Sussex. (A.B.E.G.I.M.O.)
 Pattison, Miss J., 35 William Mews, Lowndes Square, S.W.1. (O.)
 Pattison, Dr. J. R., 71 West Side, Clapham Common, S.W.4. (O.)
 Paul, C. R. C., 60 Priory Way, North Harrow, Middx. (G.)
 Paulson-Ellis, C. W. G., M.B.O.U., F.Z.S., The Moat House, Melbourn, Royston, Herts. (A.O.)
 Payne, R. J., 6 Queens Gate, S.W.7. (O.)
 Payne, Mrs. R. J., 6 Queens Gate, S.W.7. (O.)
 Payne, R. M., 8 Hill Top, Loughton, Essex. (B.E.I.O.)
 Payton, H. G., 26a Colenso Road, Seven Kings, Ilford, Essex. (B.E.F.O.)
 Payton, H. W., Lianda, Hill Close, Harrow, Middx. (A.B.O.)
 Pearce, B. S. K., 10 Eyre Close, Gidea Park, Essex. (B.I.O.)
 Pearce, E. W., Robin's Nest, Adelaide Terrace, Blackburn, Lancs. (O.)
 Pearce, H. E. D., 18 Queens Way, W.2. (O.)
 Pedler, E. G., 78 Richmond Park Road, S.W.14. (I.O.R.)
 Peel, C., 21 Whitecroft Way, Beckenham, Kent. (O.)
 Peggs, Miss B. M., 63 Wellesley Road, Ilford, Essex. (B.E.F.R.)
 Pegram, D. C., 44 Combemartin Road, S.W.18. (E.O.)
 Perowne, Miss D. M., 98 The Hornet, Chichester, Sussex. (B.I.)
 Perrin, J. F., A.M.I.E.E., 6 Cavendish Avenue, Welling, Kent. (A.B.E.G.O.)
 Perrins, C. M., B.Sc., Thursday Cottage, Ember Lane, Esher, Surrey. (E.I.O.)
 Perry, S. G., St. Mildred's, Church Grove, Little Chalfont, Bucks. (E.O.R.)
 Peskett, N., 5 Stapleford Road, Wembley, Middx. (A.B.E.G.H.I.O.R.)
 Peterken, J. H. G., F.L.S., 73 Forest Drive East, E.11. (B.E.G.O.)
 Petrie, Miss B., 49 Belsize Park, N.W.3. (O.)
 Pettit, A. V., 32 Lambourne Crescent, Sheerwater, Woking, Surrey. (I.O.)
 Petty, G. R., 106 Kings Road, Rayners Lane, Harrow, Middx. (G.I.)
 Phillips, A., 74 St. John's Park, S.E.3. (O.)
 Phillips, Miss C., 49 Revelstoke Road, S.W.18. (B.O.R.)
 Phillips, Miss E. M., 4 Perry Rise, S.E.23.
 Phillips, J. H., 111 Upper Selsdon Road, Sanderstead, Surrey. (I.O.)
 Phillips, R. H., 48 Fordington Road, N.6. (O.)
 Phillips-Price, M., M.P., The Grove, Taynton, Gloucester. (A.E.G.O.)
 Pickerden, M. E., 51 Onslow Gardens, N.10. (A.O.)
 Pickess, B. P., 23 Pembroke Road, Ruislip, Middx. (O.)
 Pidgeon, M. D., 280 Park Road, N.8. (B.G.)
 Pierce, C. W., 125 Heath Road, Hounslow, Middx. (A.B.H.O.)
 Piercy, Miss J. McL., 143 George Street, Bryanston Square, W.1. (I.O.)
 Piercy, W. E. K., Clifton Cottage, Clifton, Sheppard, Beds. (O.)
 Pike, Oliver G., Hon.F.R.P.S., The Warren, Billington Road, Leighton Buzzard, Beds. Hon. V.-Pres.
 Pilcher, E. J., 91 Studdridge Street, S.W.6.
 Pile, Mrs. P. F., 8 South Marine Terrace, Aberystwyth, Cards. (A.B.G.O.R.)
 Pilkington, R. C. L., Hill House, Stanstead Abbots, Ware, Herts. (O.)
 Pinsent, J. S., Rutli, The Glade, Fetcham, Leatherhead, Surrey. (E.R.)
 Piper, Miss M. F., The Royal Free Hospital, Lawn Road, N.W.3. (B.H.O.)
 Pitman, Capt. C. R. S., C.B.E., D.S.O., M.C., Flat 9, 12 Chelsea Embankment, S.W.3. (O.)
 Pitt, Miss F., The Albynes, Bridgnorth, Salop. (M.O.)
 Pizzala, Miss J. E., 1 Thetis Terrace, Kew Green, Richmond, Surrey. (A.B.E.G.R.)
 Platt, Miss A. H., 50 Park Avenue, Eastbourne, Sussex. (O.)
 Platt, J., 50 Park Avenue, Eastbourne, Sussex. (O.)
 Playle, B. T., 12 Midway, Walton-on-Thames, Surrey. (O.)
 Plowman, L., F.Z.S., 22 Bramley Avenue, Coulsdon, Surrey. (E.O.)
 Plowman, Miss P. A., 22 Bramley Avenue, Coulsdon, Surrey. (E.O.)

Plumbly, Miss J., 4 Cromer Court, Cromer Villas Road, S.W.18. (A.B.G.O.R.)
 Polunin, O., Sutton Cottage, Charterhouse Hill, Godalming, Surrey. (B.E.)
 Pomeroy, Miss F. A., B.Sc., 4 Manor Grove, Tonbridge, Kent. (A.B.)
 Pooock, S. G., Mount Lodge, The Rise, Kingsdown-on-Sea, Kent. (E.I.O.)
 Pope, Mrs. J. M., 82b Burnt Ash Hill, S.E.12. (A.B.E.G.O.)
 Pope, Dr. S., St. Helen's, Liss, Hampshire. (O.)
 Popplewell, N., 87 Bexley Lane, Sidcup, Kent. (E.I.O.R.)
 Porter, R. F., 58 Bloomfield Avenue, N.13. (O.)
 Potts, G. O., 33 Fawnbrake Avenue, S.E.24. (I.O.)
 Powell, Miss B. M., 68 Woodside Avenue, N.6. (O.)
 Pratt, H. M., Stone House, Dartford, Kent. (A.B.G.O.)
 Pratt, N. H., 355 City Road, E.C.1. (O.)
 Preston, D. A., 16 Moorhayes Drive, Laleham, Middx. (O.)
 Prevost, Miss C. A., 5 Hill Rise, Claygate Lane, Hinchley Wood, Esher, Surrey.
 (I.O.)
 Prichard, Miss E., 25 Westbourne Terrace, W.2. (O.)
 Priest, R., C.B., M.A., M.D., 627 Nell Gwynn House, Sloane Avenue, S.W.3.
 (A.G.R.)
 Primmer, Miss B. P. R., 5 Jubilee Avenue, London Colney, St. Albans, Herts. (O.)
 Pritchard, Dr. R., 32 Lawn Road Flats, N.W.3. (O.)
 Pryce, Miss R. M., 25 Heathdene Road, Wallington, Surrey. (B.E.O.R.)
 Pugh, Miss M. E., 14 Daleham Gardens, N.W.3. (O.)
 Purdy, W. H., 100 Bradmore Way, Old Coulsdon, Surrey. (O.)
 Putman, D., 24 Osterley Avenue, Isleworth, Middx. (H.O.)
 Puttock, R. Ll., 35a Howard Road, S.E.25. (G.O.)
 Pyle, M. A., B.Sc.(Tech.), A.M.C.T., 16 Dudley Hill Close, Welwyn, Herts. (O.)
 Pyle, Miss R. A., 44 Collamore Avenue, S.W.18. (O.)
 Pyrah, R. D., B.A., Medical School, Middlesex Hospital, W.1. (O.R.)

Queen Mary College, Mile End Road, E.1.
 Quenet, A., 22 Woodlands Avenue, N.3.
 Quenet, Mrs. W. A., 22 Woodlands Avenue, N.3.
 Quilter, B. S., Moret, Childs Hall Road, Bookham, Leatherhead, Surrey.

Rabbets, A. J., 36 Black Oak Road, Cyncoed, Cardiff.
 Racine, Miss T., 125 Ridgeway Drive, Bromley, Kent. (B.O.R.)
 Radford, F. W. P., 62 Addington Road, Sanderstead, South Croydon, Surrey. (O.)
 Ramshaw, Miss J. D., 22 Linden Gardens, W.2. (O.R.)
 Rand, Miss B., 41 Waterlow Road, Reigate, Surrey. (O.)
 Ransom, R. S., 16 Belmont Road, Bushey, Watford, Herts. (O.R.)
 Ratcliff, P. W., Redlands, Middle Street, Brockham, Surrey. (B.E.O.)
 Rauch, P., 4 Parkholme Road, E.8. (B.F.O.R.)
 Raw, P. J., 75 Evershot Road, N.4. (O.)
 Ray, Miss T., Little Shepherds, Austenwood Lane, Gerrards Cross, Bucks.
 Raybould, J. N., 8 Ember Farm Avenue, East Molesey, Surrey. (B.E.G.I.O.)
 Redgwell, E., 30 Sedlescombe Road, S.W.6. (A.B.G.)
 Redman, Miss J. M., 138 Hercies Road, Hillingdon, Uxbridge, Middx. (A.B.H.O.R.)
 Rees Thomas, C. B., F.R.C.P., M.D., D.P.M., High Hackhurst, Abinger Hammer,
 Dorking, Surrey. (B.O.)
 Rees Thomas, Mrs. C. B. E., High Hackhurst, Abinger Hammer, Dorking, Surrey.
 (B.O.)
 Reeve, Miss E. A., The Penn Club, 22 Bedford Place, W.C.1. (B.E.I.O.R.)
 Reeves, F. C., 128 Stephendale Road, S.W.6. (O.)
 Reeves, S. K., 41a Ashley Road, Epsom, Surrey. (O.)
 Regan, Mrs. C. L., 176 Hammersmith Grove, W.6. (A.E.G.)
 Reid, A. W., 220 Lewisham Way, S.E.4. (M.O.R.)
 Reid, D. A. R., 72 Sheen Court, Upper Richmond Road, Richmond, Surrey. (G.O.)
 Remnant, Miss Y., 4c Cromwell Crescent, S.W.5. (A.B.E.G.H.I.M.O.R.)
 Renson, I., M.P.S., 27 Classic Mansions, Well Street, E.9. (B.)
 Reynell, Mrs. S., 12 Oakleigh Park North, N.20. (O.)
 Reynolds, V., 9 Marble Hill Gardens, Twickenham, Middx. (H.O.)
 Reynolds, W. E., 19 Highworth Road, N.11. (E.F.G.O.)
 Rhodes, F., 24 Lorton House, West End Lane, N.W.6.
 Richards, B. A., 29b St. John's Avenue, S.W.15. (O.)
 Richards, Miss D. M., Hounslow Hospital, Hounslow, Middx. (B.H.R.)
 Richards, P. R., Flat 1, 16 Lyonsdown Road, New Barnet, Herts. (I.O.)
 Richardson, A. E., 391 Malden Road, Worcester Park, Surrey. (I.)
 Richardson, F. D. S., F.G.S., 33 Ridgeway Road, Redhill, Surrey. (B.E.G.O.)

- Richardson, H. L. Ph.D., 62 Canfield Gardens, N.W.6. (O.)
 Rigden, R. G., 23 Matfield Road, Upper Belvedere, Kent. (E.I.M.O.)
 Righelato, R. C., 57 Sherwood Park Road, Mitcham, Surrey. (E.O.)
 Rignall, J. N. A., 1 Cyril Mansions, Prince of Wales Drive, S.W.11. (O.)
 Riley, J. J., 92 Tamworth Lane, Mitcham, Surrey. (I.)
 Roberts, Miss D., 7 Colosseum Terrace, Albany Street, N.W.1. (B.O.)
 Roberts, Miss O. M., 16 Granville Mansions, W.12. (B.O.R.)
 Roberts, Mrs. S., 27 Dawson Place, W.2. (A.B.E.G.I.O.R.)
 Roberts, Miss M. A., 27 Dawson Place, W.2. (A.B.E.G.I.O.R.)
 Robins, Miss M. E., 47 Granby Avenue, Harpenden, Herts. (B.E.O.)
 Robinson, Miss A. G., Flat G.1, Sloane Avenue Mansions, S.W.3.
 Robinson, G. M., 3 Cowpers Way, Tewin Wood, Welwyn, Herts. (O.)
 Robinson, Miss M. G., 100 Abbey Road Mansions, N.W.8. (O.)
 Rodgers, A. B. C., Devon, Holwood Park Avenue, Farnborough, Kent. (O.)
 Rogers, I. H., 98 West Side, Clapham Common, S.W.4. (B.E.H.I.O.R.)
 Rook, Miss D. A., 55 Chesterfield Road, West Ewell, Epsom, Surrey. (E.O.)
 Roper, T. G., 13 Sanderstead Hill, Sanderstead, South Croydon, Surrey. (A.B.)
 Rose, J. T., 236 Staines Road, Hounslow, Middx. (B.E.G.H.)
 Ross, J., 23 College Gardens, E.4. (B.I.O.) Hon. V.-Pres.)
 Ross, Mrs. M. E., 3a Langham Mansions, Earls Court Square, S.W.5. (A.G.)
 Rotheroe, J. W., 12 Barn Hill, Wembley Park, Middx. (A.B.G.O.R.)
 Round, E. A., 26 Frederica Road, E.4. (A.E.G.)
 Round, Mrs. E. A., 26 Frederica Road, E.4. (B.)
 Rowton, Miss N. J., 23 Copthall Gardens, Twickenham, Middx. (H.)
 Rudd, H. W., M.Sc., F.R.I.C., High Pines, Woodland Drive, Sunninghill, Berks. (O.)
 Rudge, M. A., 42 Uckfield Road, Enfield, Middx. (A.B.E.F.G.I.M.O.R.)
 Ruislip and District Natural History Society, Battle of Britain House, Northwood, Middx.
 Rule, A. W., Mill House, Westbourne, Emsworth, Hants. (B.G.I.O.)
 Rule, Mrs. M. H., Mill House, Westbourne, Emsworth, Hants. (A.G.)
 Rumbold, T. A., 95 Rivermead Court, S.W.6. (O.)
 Russell, Mrs. B. H. S., Manor Cottage, Jackson's Lane, Billericay, Essex. (B.)
 Russell, Miss M. E., 35 Royal Avenue, S.W.3. (B.E.F.)
 Rutledge, W., M.A., F.R.E.S., 2 Feldmore Cottages, Holmbury House, Holmbury St. Mary, Dorking, Surrey. (E.I.O.)
 Ryall, R. H. M., 25 Stilecroft Gardens, Wembley, Middx. (O.)
 Ryall, Mrs., 25 Stilecroft Gardens, Wembley, Middx. (O.)
 Ryan, Miss I. M. N., The Lithe, Sandy Lane, Reigate Heath, Reigate, Surrey. (B.O.)
 Ryman, M. G., 37 St. Leonard's Avenue, Hayling Island, Hants. (E.G.)
- Sabin, Miss E. F., 27 Langbourne Avenue, N.6. (O.)
 Sage, B., F.R.E.S., M.B.O.U., 11 Deepdene, Potters Bar, Middx. (I.O.)
 St. Bartholomews Natural History Society, Abernethian Room, St. Bartholomew's Hospital, E.C.1.
 St. Mark and St. John, College of, King's Road, S.W.10.
 Salmon, Miss C. A., 49 Highbury Avenue, Thornton Heath, Surrey. (A.E.G.B.I.O.R.)
 Sames, E. N., 38 Deauville Court, Elms Crescent, S.W.4. (A.B.E.G.I.M.O.R.)
 Sames, Mrs. W., 38 Deauville Court, Elms Crescent, S.W.4. (A.B.E.G.I.M.O.R.)
 Samuel, Miss E. M., Yewcroft, Rectory Park, Sanderstead, South Croydon, Surrey. (B.E.I.G.O.)
 Sanday, Miss M. G., 1a Albion Road, Sutton, Surrey.
 Sander, Miss H. K., 29 Bennet Park, S.E.3. (I.O.)
 Sanderson, R. F., 51 Rylston Road, N.13. (O.)
 Sartoris, Miss E., 17 Neville Street, S.W.7. (O.)
 Saunders, J. A., 8 Turner Avenue, Twickenham, Middx. (O.R.)
 Saunders, Miss W. H., "Braden," Stonegallows Hill, Taunton, Somerset. (O.)
 Scholey, Miss M. A. R. S., Flat 29, 20 Stuart Crescent, N.22. (A.B.E.F.G.I.O.)
 Schwab, Mrs. M. O., 14 Mornington Avenue, W.14. (O.)
 Scott, Miss E. M. P., 87 Gloucester Court, Kew Gardens, Richmond, Surrey. (A.O.)
 Scott, P. M., C.B.E., D.S.C., M.A., F.Z.S., New Grounds, Slimbridge, Gloucestershire. (O.)
 Scott, R. E., 48 Gassiot Way, Sutton, Surrey. (O.)
 Scrutton, Miss P. M., 6 Coleherne Road, S.W.10. (O.)
 Seaman, Miss E., 24 Rahn Road, Epping, Essex. (F.O.R.)
 Sear, Miss P., 259 Bowes Road, N.11. (O.)
 Seddon, Miss S., 42 Broadhurst Avenue, Edgware, Middx. (A.B.E.G.O.R.)
 Sedergreen, Miss R. C., 43 York Street Chambers, York Street, W.1. (B.O.)
 Selby, C., B.Sc., Ph.D., 13 Cleveland Road, E.18. (B.)

- Sellar, P. J., M.B.O.U., 21 Essex Park, N.3. (F.O.R.)
 Sergeant, C. W. H., 16 Welbeck Court, Addison Bridge Place, W.14.
 Seth-Smith, D. W., M.R.C.S., L.R.C.P., 5 Sandy Lodge Way, Northwood, Middx. (O.)
 Shaw, Miss M. B., 109 Palace Road, S.W.2.
 Shean, D. H. S., 8 Clare Road, E.11. (E.F.I.O.R.)
 Shearman, A. L., 7 Oaklands Rise, Welwyn, Herts. (O.)
 Shearman, Mrs. C. M., 7 Oaklands Rise, Welwyn, Herts. (O.)
 Shearman, Miss P., 27 Lamberhurst Road, S.E.27. (B.O.R.)
 Sheasby, P. G., "Cherry Trees," Alywards Rise, Stanmore, Middx. (B.)
 Sheldon, A., 82 Woodland Drive, Hove, Sussex. (O.)
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 Stott, C. G., O.B.E., F.R.I.C.S., 10 Albemarle, Wimbledon Park Side, S.W.19. (O.)
 Stott, Miss E. M., 40 Lansdowne Crescent, W.11. (B.G.O.R.)
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 Street, Miss D. D., 8 Denning Road, N.W.3. (O.)
 Street, Dr. D. F., 38 Lansdowne Road, N.3. (O.)
 Street, Mrs. D. J., 38 Lansdowne Road, N.3. (A.)
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 Sturrock, Mrs. J., 29 Elgood Avenue, Northwood, Middx.
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 Tatum, J. B., 19 Montpelier Road, N.3. (I.O.)
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 Taylor, D. W., 11 Meadway, N.W.11. (O.)
 Taylor, Miss E., Flat 7, 18 Ladbroke Square, W.11. (O.)
 Taylor, G., 31 Heathview, East Horsley, Leatherhead, Surrey. (O.)
 Taylor, Miss K., 69a Victoria Rise, S.W.4. (A.B.R.)
 Taylor, Miss M. M., 103 Corringham Road, N.W.11. (O.)
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 Thomas, E. J., 48 Honeywell Road, S.W.11.
 Thomas, Mrs. G. M., 14 Fawcett Street, S.W.10. (B.E.M.)
 Thomas, M., B.Sc., 5 Brookfield Park, N.W.5. (A.G.O.)
 Thomas, M. H. J., 51 Stafford Road, Ruislip, Middx. (G.)
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 Thompson, A. J. B., 254 The Headlands, Northampton. (O.)
 Thompson, Miss E. A., 5 Kelvington Road, S.E.15
 Thompson, Captain R. R., 1 The View, Roundhay, Leeds, 8. (O.R.)
 Thomson, Dr. K. D. B., 76 Brondesbury Road, N.W.6. (O.)

- Thomson, W. W., M.B., Ch.B., 42 Norbury Cross, S.W.16. (O.)
 Thornton, J. O., Southdown Hall Hotel, The Downs, S.W.20. (O.)
 Thoyts, Miss P. E. D., 15 Inglis Road, W.5. (B.F.H.M.O.R.)
 Tilden-Smith, Miss G. R., 43 Acacia Road, N.W.8. (B.G.)
 Tilley, Miss M. J., 42 Huxley Road, N.18. (O.R.)
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 Timson, Mrs. M. H., 85 Dollis Hill Avenue, N.W.2. (G.)
 Tipper, T. A., 96 Tennyson Road, N.W.6. (O.)
 Titmuss, Miss M., 69a Madeley Road, W.5. (A.B.O.)
 Todd, Miss G. E., 68 Ladbroke Grove, W.11. (B.O.R.)
 Tollington Park School, Marriott Road, N.4.
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 Toop, Mrs. N. M., White Lodge, Enfield, Middx. (O.)
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 Torkington, Robert, 39a Pallister Road, W.14. (B.O.)
 Torode, M. J., c/o E. J. Larby Ltd., 9 Old Bailey, E.C.4. (E.O.)
 Tourell, Miss M. D., 34 Belsize Park, N.W.3. (G.)
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 Turner, D. J., 14 Fairlawn Road, S.W.19. (A.G.)
 Turner, D. N., 121 Abbeville Road, S.W.4. (B.O.R.)
 Turner, Mrs. M., 1 Hillfield Park, N.10. (A.B.F.G.O.R.)
 Turrill, E. F., 7 Charminster Avenue, S.W.19. (O.)
 Tydeman, A. E., Altels, Potters Lane, Send, Woking, Surrey. (O.)
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 Upward, E. F., 154 Turney Road, S.E.21. (B.)
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 Varaillon, L. G., 139 Willingdon Road, N.22. (O.)
 Vaughan, A. H., 8 Woodcroft, N.21. (B.F.M.O.)
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 Vernon, A. J., Flat 2, 20 Woodborough Road, S.W.15. (E.G.O.)
 Vickers, J. O. N., 29 Burlington Road, W.4. (H.O.)
 Vince, A. A. P., 14 Church Hill, N.21. (B.I.)
- Wadley, N. J. P., 14 Elm Place, S.W.7. (O.)
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 Wilson, Miss E. A., 21 Alwyn Avenue, W.4. (O.)
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